

Refrigeration & Air-conditioning *Business*

DECEMBER 1958

**NOW
COMPLETE**

Part 12
in this
issue

**YOU'RE
THE
BOSS**

a 12-part "textbook" on business management
by **George C. Webster**, management consultant

- 1 How To Analyze Your Business
- 2 What Is Your Business Philosophy?
- 3 Budgeting— or Planning Ahead for Profits
- 4 Organizing Your Business for Effective Control
- 5 Accounting as a Tool of Business Control
- 6 How To Control Your Business Expenses
- 7 Effective Control of Job Costs
- 8 Control of Sales Is Key to Volume
- 9 Profitable Pointers on Control of Advertising
- 10 Cash Is the Key To Financing Your Operations
- 11 Employee Relations Can Work for You
- 12 How To Plan Your Budget for 1959

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DESIGNED TO HELP YOU SELL

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THE "BRAIN" THAT DOESN'T GIVE TUBING A "BREAK"



This is Viking's Newest "Brain"!

It is another unique application of electronic technology in Viking's modern specialized plant . . . making certain that Viking thin-wall copper tubing is absolutely free of breaks, pinholes, or other imperfections.

The "Brain" not only seeks out the minutest defect in the wall of tubing passing through its field of sensitivity, but automatically marks faulty spots and discards the tubing so it cannot be used.

The electronic "Brain" is typical of many advanced procedures employed in the manufacture of Viking copper tubing to assure users trouble-free fabrication and perfect performance.

It is through these quality controls that Viking has become the principal source of thin-wall tubing for America's leading manufacturers of air conditioning and refrigeration units and coils.



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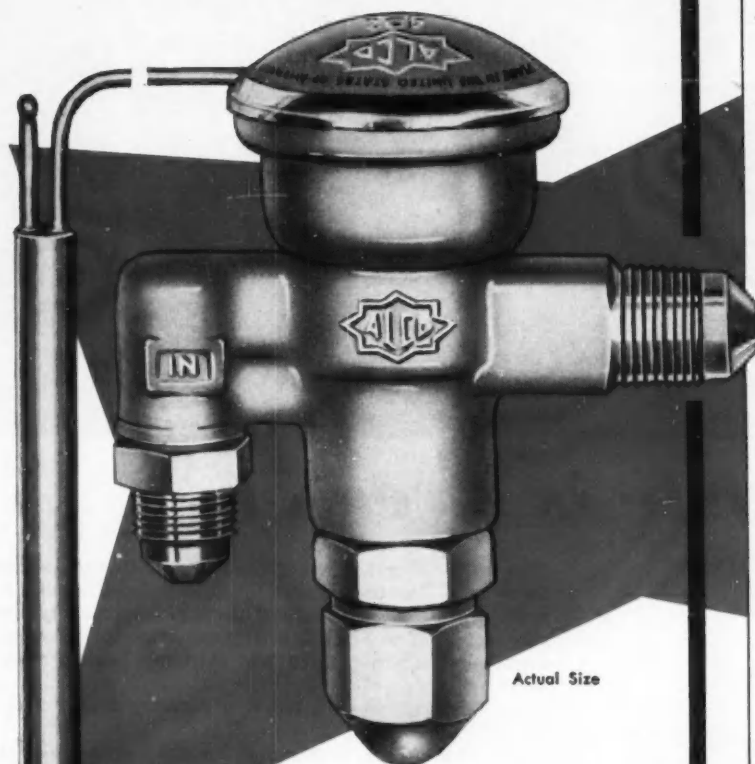
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FIELD PROVEN MODELS FOR ALL THESE CAPACITIES:

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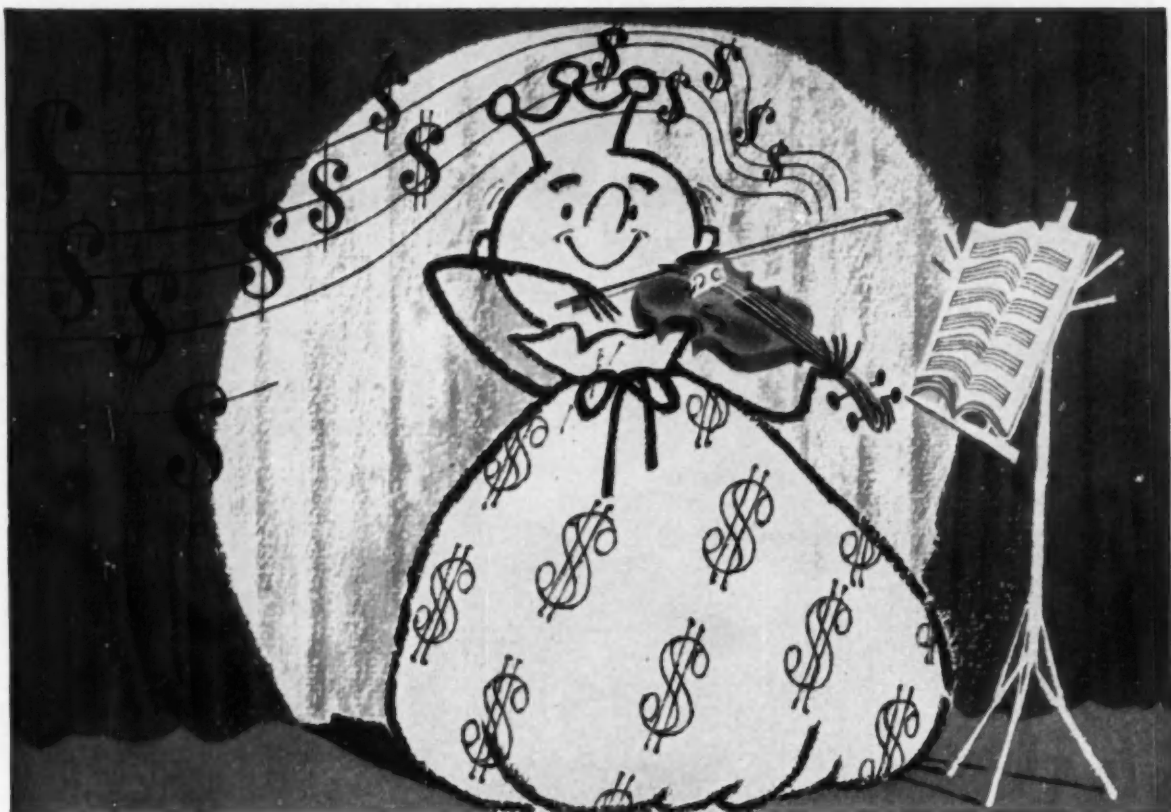
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The name "Chrysler" is synonymous with engineering know-how. This technical skill and knowledge is soundly built into Airtemp cooling and heating. Customers realize this fact—full well! And, briefly put, this is one of the sound underlying reasons why Airtemp dealers make more money.

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- *Pre-tested* merchandising helps and incentive programs.
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Want to make sweet sales music? Then tie up with Airtemp—the profit franchise! Just mail the coupon below.

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Please send me full information on an Airtemp franchise.

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REFRIGERATION & AIR-CONDITIONING

reader's guide to



for December 1958

COVER: Trying to budget your business operations for 1959? Let an expert help you. George Webster devotes the concluding article in his 12-part series on business management to the problems of planning for the year ahead. Be sure to turn to page 34 and benefit from his sound advice.

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Here are some things we're planning to make 1959 interesting and profitable
- 34 HOW TO PLAN YOUR BUDGET FOR 1959**
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Bad management has forced many a firm to close its doors. Don't let it happen to you!
- 40 AIR DOES DOUBLE DUTY**
... as the source of both heating and cooling in this industrial heat pump job
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All signs seem to indicate that there'll be some changes made
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... by providing a steady source of income and plenty of good sales leads
- 45 RESERVE CAPACITY WHEN NEEDED**
... is provided by this booster compressor on a two-stage refrigeration system
- 47 TIPS ON INSTALLING STEAM AND HOT WATER UNIT HEATERS**
A list of potential trouble spots, and what you can do to avoid them
- 49 WATCH YOUR BIDS — THEY CAN MAKE OR BREAK YOU**
Here's a step-by-step estimating procedure designed to eliminate costly errors



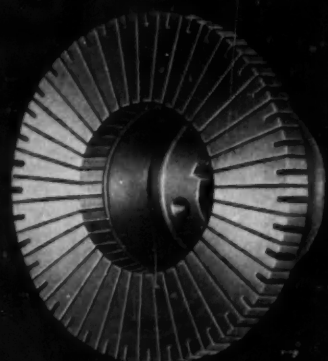
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• Accepted as Controlled Circulation Publication at St. Joseph, Michigan. Please return 3579 forms to 800 Canton Bldg., 812 Huron Road, Cleveland 15, Ohio.

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LONGER
SERVICE
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always replace with genuine WAGNER COMMUTATORS

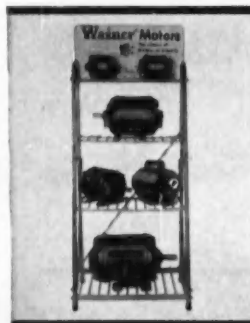


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Wagner Replacement Commutators will last for years and years. That's because they're built with care to provide the extra strength needed for longer life. They're high-speed tested to withstand great centrifugal force. And they're safe to reface, too.

You get these 5 important features.

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2. Short-circuiting ring is made of brass.
3. Bakelite washer insulates short circuiting ring from commutator hub to eliminate harmful shaft currents.
4. Reinforcing steel shell.
5. Entire assembly is molded in high impact phenolic compound.



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Sell Wagner Motors to replacement-minded customers with the "sale at first sight" aid of the Wagner Merchandiser... colorful, chrome-plated display stand. Just \$9.95 with your order for any 10 Wagner Motors in one lot. Check into this deal today.



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Refrigeration & Air-conditioning *Business*

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published monthly by

The Industrial Publishing Corporation
812 Huron Road Cleveland 15, Ohio

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LESTER P. AURBACH.....Exec. Vice President
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Subscription Rates: United States and possessions \$7.00 per year, \$12.00 for 2 years; Canada—\$8.00 per year; Foreign—\$10.00 per year, except the United Kingdom. United Kingdom subscriptions £5.5.0 per year, payable in Sterling to our London Office. Single copy price in U.S. .75 cents. All subscriptions subject to individual acceptance by the publisher.

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REFRIGERATION & AIR-CONDITIONING



Introduces...

A New Concept
in Cooling Towers

ADJUSTABLE CAPACITY

Flexi-Tower

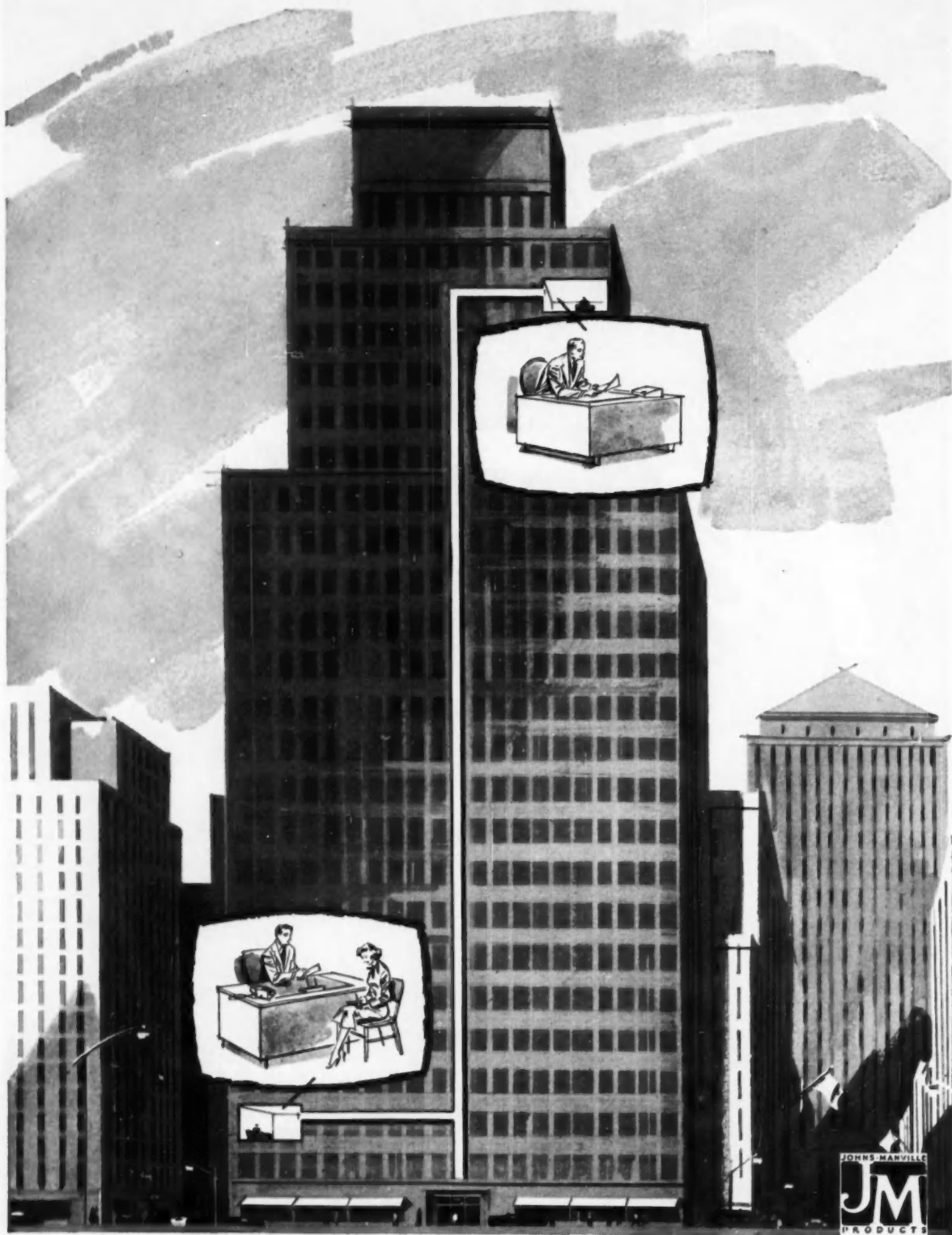
- MORE CAPACITY
- INFINITE SELECTIONS
- LOW COST
- BUILT TO B.A.C. QUALITY STANDARDS

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BALTIMORE AIRCOIL COMPANY, INC.

P. O. BOX 7322 • BALTIMORE 27, MARYLAND

Mr. Smith is 600 duct feet farther from



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REFRIGERATION & AIR-CONDITIONING

the fan room than Mr. Jones, yet...

both men work comfortably at the same temperature!

*when ducts are fitted square and tight with
Johns-Manville semi-rigid Spintex Insulation*

SEMI-RIGID SPINTEX® works two ways to lessen heat loss, stop condensation: first, with low conductivity... then, with its square, tight fit. The structural strength of this material, which is fastened snugly to duct surfaces with pins and clips, prevents "ballooning" due to duct leakage. And butted or mitred joints eliminate stretching and thinning of the insulation at corners. Instead, there's a full thickness of Spintex—with full protection against heat loss and condensation—over the *entire duct area*.

This two-way "edge" in insulating effectiveness is the big reason why leading engineers everywhere specify semi-rigid Spintex... for factories, institutions and office buildings of every description.

----->

LESS HEAT LOSS...NO CONDENSATION AT CORNERS!

Semi-rigid (not flexible) Spintex fits squarely and tightly all duct surfaces. Stretching and thinning at corners, unavoidable with wrap-around insulations, are eliminated completely. Instead, Spintex retains full thickness everywhere to stop heat loss and condensation. Its structural strength prevents "ballooning."

FACED FOR ANY SPECIALIZED NEED!

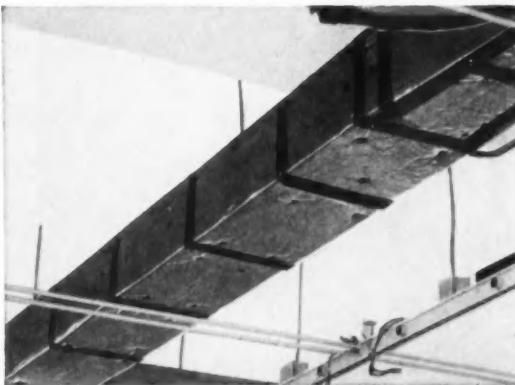
J-M offers you a facing to meet any vapor condition, incombustibility requirement or decorative need. Provides good base for plaster finish... or where no facing is indicated, Spintex presents an attractive appearance with trim, tidy joints.

INSTALLS QUICKLY...ECONOMICALLY.

Spintex is clean, sanitary and "friendly" to handle. It cuts readily with an ordinary knife. Installs quickly, easily, even when ducts are curved or in difficult-to-reach areas.

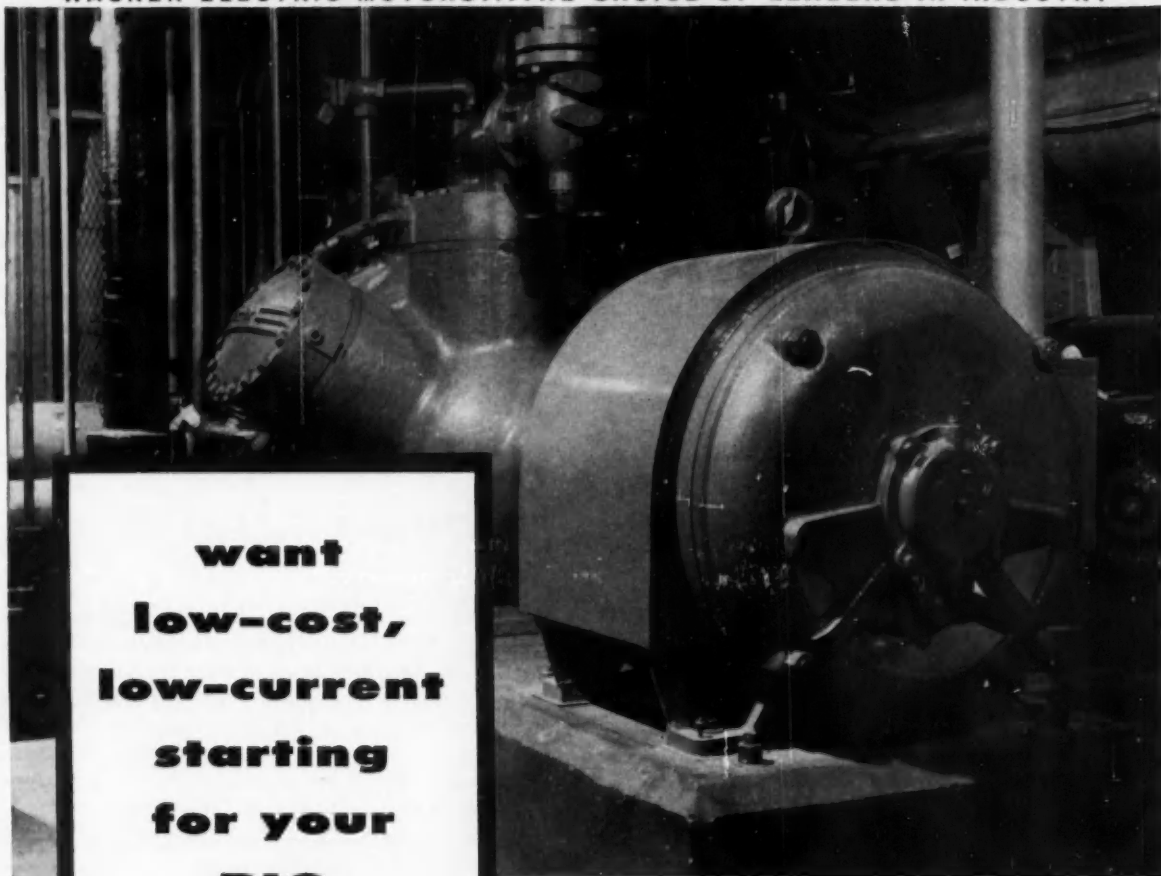
Produced by a new Johns-Manville spinning process, today's Spintex offers more insulating value than ever. Its mineral fibers are smaller in diameter, and substantially more uniform. This improved fibrous structure adds countless heat-blocking dead-air spaces per cubic inch to help keep working temperatures precisely the same throughout the structure... with minimum operating costs!

Your Johns-Manville sales representative will be pleased to send you information, along with samples of Spintex and J-M facing materials. Why not call him today. Or write Johns-Manville, Box 14, New York 16, N. Y. In Canada, 565 Lakeshore Road East, Port Credit, Ontario.



AIA FILE NO. 37-D-1-2

JOHNS-MANVILLE



**want
low-cost,
low-current
starting
for your
BIG
MOTORS?**



Type RP polyphase motor—
in ratings to 500 hp. with
increment type starter.

Specify Wagner Increment Motor-Starter Combinations

Part-winding starting is the simple, inexpensive way to limit the inrush of starting current in squirrel-cage motors up to 500 horsepower—and only the Wagner Increment Motor-Starter Combination gives you all these advantages:

LOW FIRST COST—Uses a standard Wagner Motor and a part-winding starter—no need for auto-transformers or resistors.

EASE OF INSTALLATION—Starter is compact and relatively light in weight, connections are simple and easy to make.

MINIMUM MAINTENANCE—The Wagner Motor requires only regular inspection, cleaning and lubrication—the starter needs very little attention.

APPROVED BY POWER COMPANIES—Meets all polyphase motor starting requirements of AEIC—EEI—NEMA—reduces voltage fluctuations—does not open the line during the starting period.

PROVED IN SERVICE—Wagner pioneered this Motor-Starter Combination—has been furnishing it for more than 18 years—its steadily increasing popularity is proof of its efficiency and dependability.

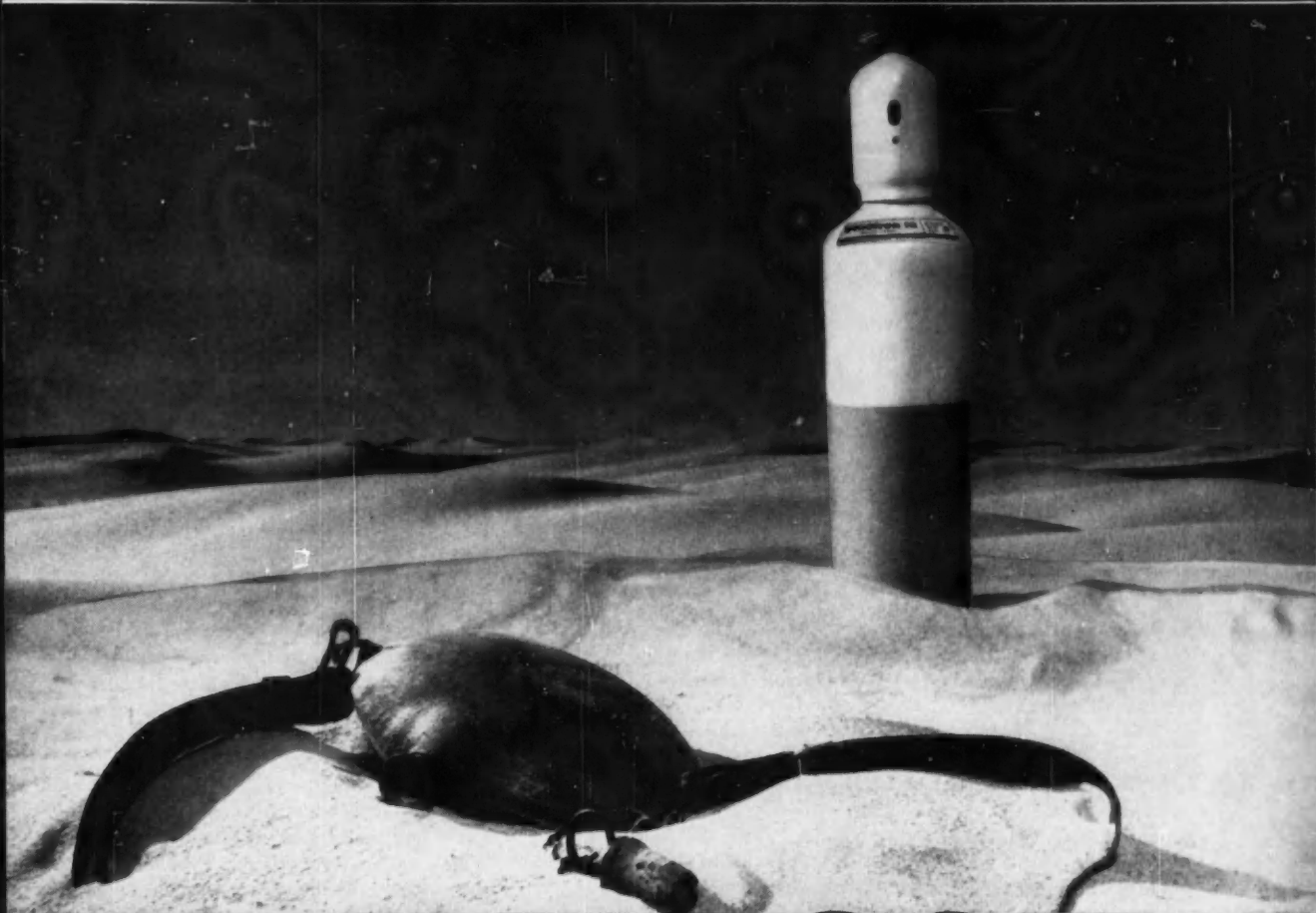
Why not take a look at Wagner Increment Motor-Starter Combination in operation? Ask your nearby Wagner Sales Engineer to show you an installation in your area. See how it works—judge for yourself, and let him help you select the combination that meets your requirements. Just call the nearest of our 32 branch offices, or write for Bulletins MU-128 and MU-195.

Wagner Electric Corporation

6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

BRANCHES AND DISTRIBUTORS IN ALL PRINCIPAL CITIES

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS—AIR AND HYDRAULIC
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DRYNESS

best reason in the world for using

genetron[®] SUPER-DRY REFRIGERANTS

"Genetron" Refrigerants are the ultimate in dryness. In "Genetron" 12, for example, there is less than one-thousandth of one percent of moisture! And the tight specifications for "Genetrons" are consistently *bettered* in production. That's why smart service engineers everywhere are insisting on Super-Dry "Genetrons."

Service? No matter where you are there's a "Genetron" wholesaler as near as your telephone. Make your next order—"Genetron."

QUICK FACTS on GENETRON Super-Dry Refrigerants

- Guaranteed exceptionally low moisture content.
- Noncorrosive to standard equipment materials, nontoxic, nonflammable, stable, safe.
- Critical and freezing points well outside range of operating uses.
- Solvent action on oil helps prevent solidification or congealing of lubricant; aids in lubrication of equipment; generally miscible with oil.
- Freely interchangeable and may be mixed in any proportions with comparable fluorinated

hydrocarbons meeting the same strict refrigerant specifications.

• Available everywhere, from refrigeration wholesalers throughout the country.

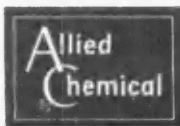
GENETRON 11 ORANGE LABEL CCl_3F
Trichloromonofluoromethane

GENETRON 12 WHITE LABEL CCl_2F_2
Dichlorodifluoromethane

GENETRON 22 GREEN LABEL CHClF_2
Monochlorodifluoromethane

GENETRON 113 PURPLE LABEL $\text{C}_2\text{Cl}_3\text{F}_3$
Trichlorotrifluoroethane

GENETRON 114a BLUE LABEL $\text{C}_2\text{Cl}_2\text{F}_4$
Dichlorotetrafluoroethane



GENERAL CHEMICAL DIVISION

40 Rector Street, New York 6, N.Y.

Circle No. 9 on Reader Service Card

ABOUT

People

Thomas E. Hastie has been appointed midwestern district sales representative for Wolverine Tube, Div. of Calumet & Hecla, Inc. In his new position Hastie will be responsible for serving customers in Nebraska, Western Iowa, and the Southeast section of South Dakota. He will concentrate his efforts on the sale of all of the company's products.



William Lanxner has been appointed supervisor, media and product publicity, plumbing and heating division of American-Standard. He succeeds John C. Adams, who has been promoted to manager of communications services in the firm's public relations division. Lanxner comes to American-Standard from the advertising department of Bakelite Co., Div. of Union Carbide Corp.

Richard D. Schiavo has joined Heat, Inc., Nashua, N. H., as sales engineer. Schiavo will handle the York-Shipley heating and air-conditioning line in the eastern part of Massachusetts.

Thomas M. Hartley has been appointed sales manager-Ucon Refrigerants by Union Carbide Chemicals Co., Div. of Union Carbide Corp. Hartley will head-quarter in New York City. He has been with the Union Carbide organization for the past six years. He moves to his new position from the corporation's Linde Co. where he was assistant to the sales manager, Gas Apparatus Dept.



Richard H. Lewin has been appointed president of Lewin-Mathes Co., Div. of Cerro de Pasco Corp. Lewin succeeds the late Felix S. Dreyer. During his 16-year association with the company, Lewin has served as executive vice president of Lewin-Mathes, and as a member of the board of directors of Cerro de Pasco Corp.

Dunham-Bush, Inc., has announced the appointment of **Patrick J. Shea** as district manager for the Los Angeles office. Shea previously was associated with Governair Co., Trane Co., and Carrier Corp.

William G. Kronauge has been named vice president in charge of sales for Coolerator Div. of McGraw-Edison Co. Formerly room air-conditioning planning manager of Kelvinator, Kronauge has had 22 years of experience in the refrigeration and air-conditioning industry. He was a Frigidaire district manager before joining Kelvinator as commercial manager of that firm's Chicago branch in 1944.



William S. Patton has been appointed advertising production manager, a newly created post, for National-U. S. Radiator Corp.

Appointment of **Page Edmunds** as assistant general manager of chemicals in W. R. Grace & Co., Davison Chemical Div., has been announced. Concurrently, Edmunds has been named vice president of Davison Chemical Co. Ltd., Canadian affiliate of the division. He formerly was general sales manager, petroleum chemicals.

W. W. Wallace has been appointed general manager in charge of the Refrigeration Div. of Wright Mfg. Co. Wallace formerly was with McCray Refrigerator Co.

Sporlan Valve Co. announces the promotion of **W. A. Reichenbach** to district manager for the New York and New England area. Reichenbach will supervise these territories from Sporlan's Mt. Vernon, N. Y. office. He has been with Sporlan since 1939. Until this promotion, he covered New York city, and parts of the states of New York and New Jersey as a sales engineer.



Albert F. Johnson has been appointed district sales manager of southern Florida for Typhoon Air Conditioning Co., and Typhoon Heat Pump Co., both divisions of Hupp Corp. Johnson will report to David P. Haring, regional manager of the Typhoon divisions. Johnson most recently was manager of air-conditioning and heat pump sales for Gibson Refrigerator Co., another division of Hupp.

Paul G. Thayer has been made chief engineer of the advance development department of Bendix-Westinghouse Automotive Air Brake Co. For the last four years, Thayer has been chief engineer of Brunner Co., division of Dunham-Bush, Inc.

Minneapolis-Honeywell Regulator Co. has promoted three men to sales positions in its Commercial Div., and has named a new manager of its Chicago factory. **F. W. Borse**, who has been with Honeywell since 1934 and has been manager of the Chicago factory since 1942,



Borse

WANTED:

AGGRESSIVE DISTRIBUTORS WHO CAN'T AFFORD TO WAIT!

Crystal Tips

Distributors are
selling 63% more ice makers
than ever before... can you
afford not to find out why?

Models illustrated reading
clockwise from top: B-500-B,
B-300-B, B-200-B. Capacities
up to 1/4 ton per day.



The fastest selling ice makers on the market today are Crystal Tips 2-in-1 Ice Makers. Why? Because automatic ice making is here and Crystal Tips has the features customers want. Now is the time to cash in on this vast market!

From the standpoint of design, engineering and attractive prices with high distributor profits, no other ice maker on the market can match Crystal Tips.

We want aggressive dealers now. If you are not satisfied with the profits you are getting from the line you are now handling or if you are not handling a line of ice makers and want more facts about a Crystal Tips distributorship, write us today.

First Name in Automatic Ice Makers

AMERICAN

AUTOMATIC ICE MACHINE COMPANY

1882 Fourth Street N. W. Faribault, Minnesota

A Division of McQuay, Inc.



IT PAYS TO BE A CRYSTAL TIPS DISTRIBUTOR

Circle No. 10 on Reader Service Card

has been transferred to the executive offices in Minneapolis to be manager of the Commercial Div.'s service and installation department. He has been succeeded as Chicago factory manager by **H. S. Olsen**, former director of personnel and industrial relations for the firm's Minneapolis plants. **Hal Canoyer**, central regional commercial man-



Canoyer



Wray

ager in Cleveland since 1946, and **William Wray**, former sales engineer in the Washington branch office, also have been transferred to the home office staff. Canoyer, with Honeywell since 1936, will help promote several new products, while Wray will be sales manager of electrical products.

Robert G. Burson has been appointed general sales manager of Mechanical Goods Div. of Dayton Rubber Co. He succeeds Leonard C. Strobeck who has retired. Burson joined the company in 1956 as sales manager of its Industrial V-Belt Div.

Chester L. May has been elected chairman of the board of directors of Arkla Air Conditioning Corp. Also elected was **Robert K. Eskew**, vice president. May recently retired as senior vice president of Lone Star Gas Co., Dallas, Tex. Eskew formerly headed York Houston Sales, Inc., Houston, Tex.

Seven additions to its sales force have been announced by American Air Filter Co., Inc. **Glenn M. DeBaker** is with the Milwaukee branch. **Raymon J. Dunn** has joined the company's Shreveport, La., office. Joining Air Filter & Equipment Co., Chicago, are **Don Ryan**, **Tom Mulvey**, and **Larry**

Harlan. Edward A. Cruse has been assigned to AAF's Detroit branch. **Harold Bee** has been added to the staff of Rush Co., AAF's Kansas City representative.

Four personnel changes have been announced by F. E. Myers & Bro. Co. **Donald E. Brubaker** has been promoted to sales administration manager. **Donald H. Paulson**, marketing research manager, has been named marketing planning manager. **Dick Topper**, former public relations manager, has been promoted to advertising and sales promotion manager. **Bill Cooper**, assistant public relations manager, moves up to public relations manager.

Barnebey-Cheney Co. has announced the appointments of **R. L. Trout** as Pur-



Trout

Air sales manager and **Frank R. Schwartz Jr.** as research director. Trout joined the company in 1956 and has served as assistant manager. Schwartz has been with the company since 1956.

William F. Steiner has been appointed sales manager of Payne Co. Steiner originally joined the company as a factory sales engineer in the northern California area and subsequently became assistant sales manager before accepting this latest appointment. His new duties will include planning of national sales programs, and direction of the company's sales policy.



Johnson Service Co. has made three promotions on the engineering and manufacturing staffs. **H. W. Alyea** was named director of engineering, **W. P. Chapman**, director of research and de-

velopment, and **John C. Spangler**, director of manufacturing.

Robert C. Trow has been elected vice president of King-Seeley Corp. Trow formerly was assistant general manager of Queen Products, subsidiary of King-Seeley. The appointment of general manager of Queen Products Div.



Trow



Lickteig

and vice president of the parent company was made in connection with the liquidation of King-Seeley's wholly owned subsidiary, Queen Products, Inc., into Queen Products Div. of King-Seeley Corp. **Robert J. Lickteig**, formerly sales manager for the Scotsman ice machine line, also has been named vice president of the parent corporation.

Jack Searls has joined Controls Co. of America as manager of field sales, heating and air-conditioning controls. Searls will be located in the Milwaukee office. He has over 20 years experience in the controls industry, formerly director of sales for Penn Controls and vice president in charge of sales at White-Rodgers.

BALDWIN HEADS CHICAGO HEATING-COOLING GROUP

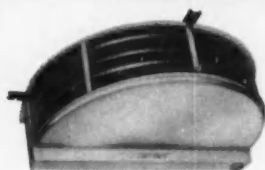
Joseph P. Baldwin has been elected president of the newly formed Chicago Better Heating-Cooling Council.

The group includes 101 contractors, wholesalers, and manufacturers' representatives.

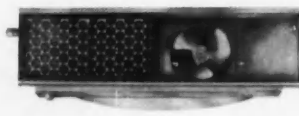
Other officers are **George W. Bornquist**, vice president; and **W. B. Davies**, secretary-treasurer.

BUY FROM YOUR REFRIGERATION WHOLESALE

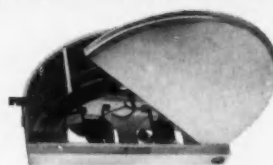
TENNEY



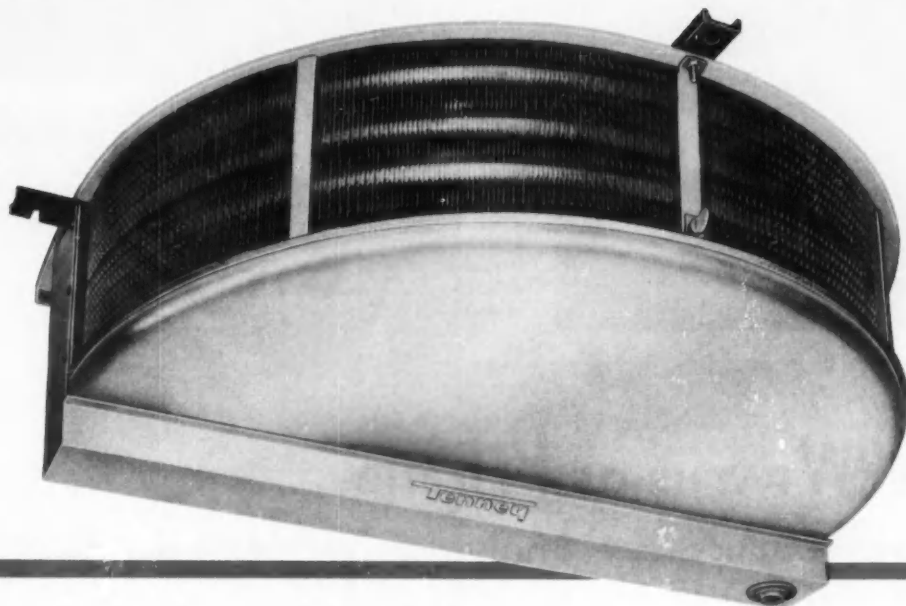
half round...



twin fanned...



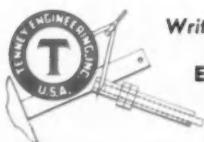
easy to service



Tenney TW and TWF unit coolers now ALL-ALUMINUM!

More cooling power per square inch and most convenient installation with Tenney's TW and TWF unit coolers than with any other comparable units—and now they're built of lightweight, rustproof aluminum. True half round design insures maximum air distribution. It hugs up tight against the ceiling and its unique design allows maximum product storage. Service is so simple—flick off a thumb screw and the entire

unit is open, with all parts within easy reach. You never disturb existing refrigeration, electrical or water drain lines! And in case of emergency, one of the unit's two fan-and-motor combinations can maintain safe temperatures until help arrives. Standard filters are optional on both units. Write for literature and technical data on these new all-aluminum TW and TWF unit coolers today.



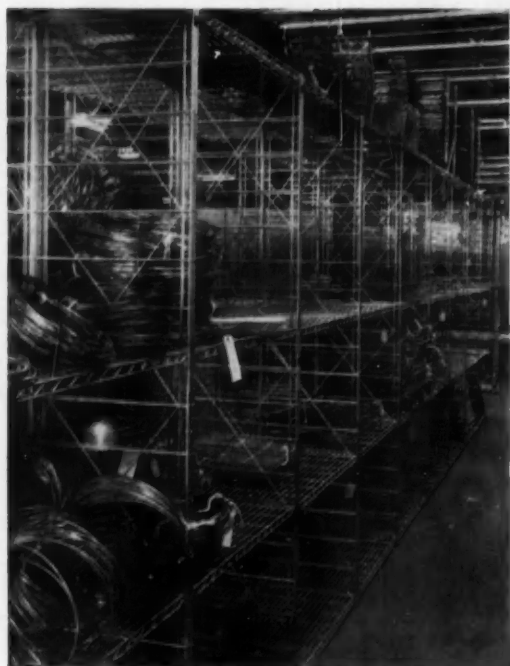
Write for Bulletin 104-54

Engineers and Manufacturers
of Refrigeration and
Environmental Equipment

Tenney
ENGINEERING, INC.

1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND BALTIMORE, MARYLAND

Circle No. 11 on Reader Service Card



ERECTA-SHELF — perfect for food storage in walk-in coolers. Non-rust units can be hosed down for effective cleaning. Adjustable shelves save space.

ERECTA-SHELF — serves well for heavy duty storage. It's strong, lightweight and fully adjustable. One man can erect a 5 shelf unit in 10 minutes. Metal Clips lock units together.

OPEN **New** PATHS OF **Profit** WITH ERECTA SHELF...

Newest, Sturdiest Shelving **ON WHEELS OR OFF**

ERECTA SHELF answers an ever-present need for more space within existing area. Better organized storage means more efficient operation along the line.

Designed primarily for cooler and backroom storage, ERECTA SHELF is the durable, all-metal shelving of a 1000 uses. *Each of these uses is your avenue to revenue.*

ERECTA SHELF IS EASY TO SELL

- *Goes Up in Minutes*—needs no nuts or bolts; can be quickly dismantled and rearranged to suit.
- *Unparalleled Strength*—each shelf will support up to 1000 pounds!
- *Rugged Steel Rod Construction* — plus corrugated steel bracing give these shelves their superior strength.
- *Carefree Maintenance*—unaffected by heat or cold; can be hosed down for easy sanitation. Heavily plated or stainless steel.
- *Designed for Flexibility*—shelves are adjustable at 5-inch intervals, accommodate items in all sizes, weights and shapes.
- *Economical ERECTA SHELF*—is priced way under any shelf that will do a similar job.

YOUR PROSPECT WANTS ERECTA SHELF FOR

Equipment Storage — everything from food cartons to compressors.

Walk-In Cooler Storage — all perishables from meats to milk.

Staple Storage — from the smallest to the tallest, from a half-ounce to a half-ton.

and more

Versatile ERECTA SHELF, now also available **on wheels**, is more adaptable, more useable than ever! Write today for facts and figures on ERECTA SHELF — your map to new paths of profit.

ERECTA SHELF

Sani-Stack

quality products of

METROPOLITAN WIRE GOODS CORP.
N. WASHINGTON ST. and GEORGE AVENUE
WILKES-BARRE, PA.

the very best



McQuay

**RADIAL UNIT
COOLERS**

**NOW IN
ALUMINUM CABINETS**

The New McQuay Radial Unit Cooler—Eight compact aluminum cabinet models ranging from 2,600 to 14,000 Btu/hr at 10° T.D. All have the newly designed hinged aluminum drain pan for easy installation and maintenance.

for **LONGER LIFE**
LIGHTER WEIGHT
BETTER PERFORMANCE

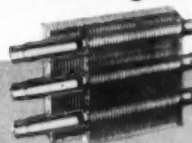
The new line of McQuay aluminum cabinet radial unit coolers is not just the best—it's the very best! You not only get longer life, but aluminum construction means a more attractive appearance and more ease of handling as well. The new hinged drain pan is a standard feature and all McQuay radial unit coolers are supplied with the famous McQuay Ripple-Fin coils which incorporate "Tube within a tube" heat exchangers without additional cost. For the very best radial unit coolers in every way, use McQuay. See the McQuay wholesaler in or near your city, or write McQuay, Inc., 1643 Broadway Street N.E., Minneapolis 13, Minnesota.

McQuay INC.



AIR CONDITIONING • HEATING • REFRIGERATION

McQuay
Means Quality

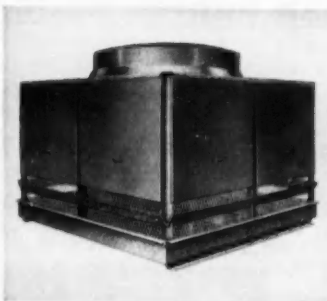


McQuay units feature the exclusive Ripple-Fin coils which create maximum turbulence and have wide, full fin collars that act as automatic spacers to form a tube around the coil tube for positive, permanent bond, greatest heat transfer and protection.

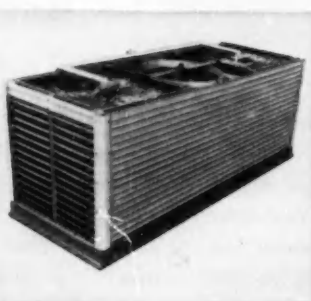
IMPORTANT NEWS FOR COOLING TOWER BUYERS

Dover "Packaged" Cooling Towers Join Famous Pritchard Line

J. F. Pritchard & Co. of California and Dover Manufacturing Company merged October 1 to offer one of the most complete range of cooling tower sizes and types in the industry. Dover's line of "packaged" towers plus Pritchard's field-assembled towers can answer the requirements of any water cooling job. Write for catalog details.



SIL **LOW**ETTE



LO LINE

INDUSTRY'S
PARTNER FOR
PROGRESS

COOLING TOWERS
GAS & AIR TREATING EQUIPMENT

REPRESENTATIVES
IN PRINCIPAL CITIES
FROM COAST
TO COAST

J.F. Pritchard & Co.
OF CALIFORNIA

4625 Roanoke Parkway, Kansas City 12, Mo.

Circle No. 5 on Reader Service Card

as we see it...

by Jim McCallum

Best way to battle the threat of imported copper tubing is to do a better selling job on the merits of the American-made product.

With this thought in mind, Nevin W. Day, president of N. W. Day Supply Co., refrigeration and air-conditioning wholesaler of Hartford, Conn., has announced a new policy of stocking only American-made refrigeration tube, Type L, in 20' lengths in sizes ranging from 3/8 to 4 1/8" o.d.

The company is no longer stocking copper water tube. This means that all tube is capped, sealed, and degassed, so that it conforms with the recommendations of all manufacturers of high and low side equipment.

An announcement of this new policy has been sent to all of the firm's customers, calling their attention to the fact that using tubing of this type exclusively will eliminate burnouts and other trouble caused by dirty and wet tubing.

* * *

Take an acoustical ceiling, force air through the holes in the tile, and what do you get? A ventilating system that absorbs sound!

Physicists at Armour Research Foundation of Illinois Institute of Technology have demonstrated that airflow through holes creates acoustic resistance and, consequently, sound absorption. This disclosure indicates several possible commercial applications, including a combined acoustical and ventilating system.

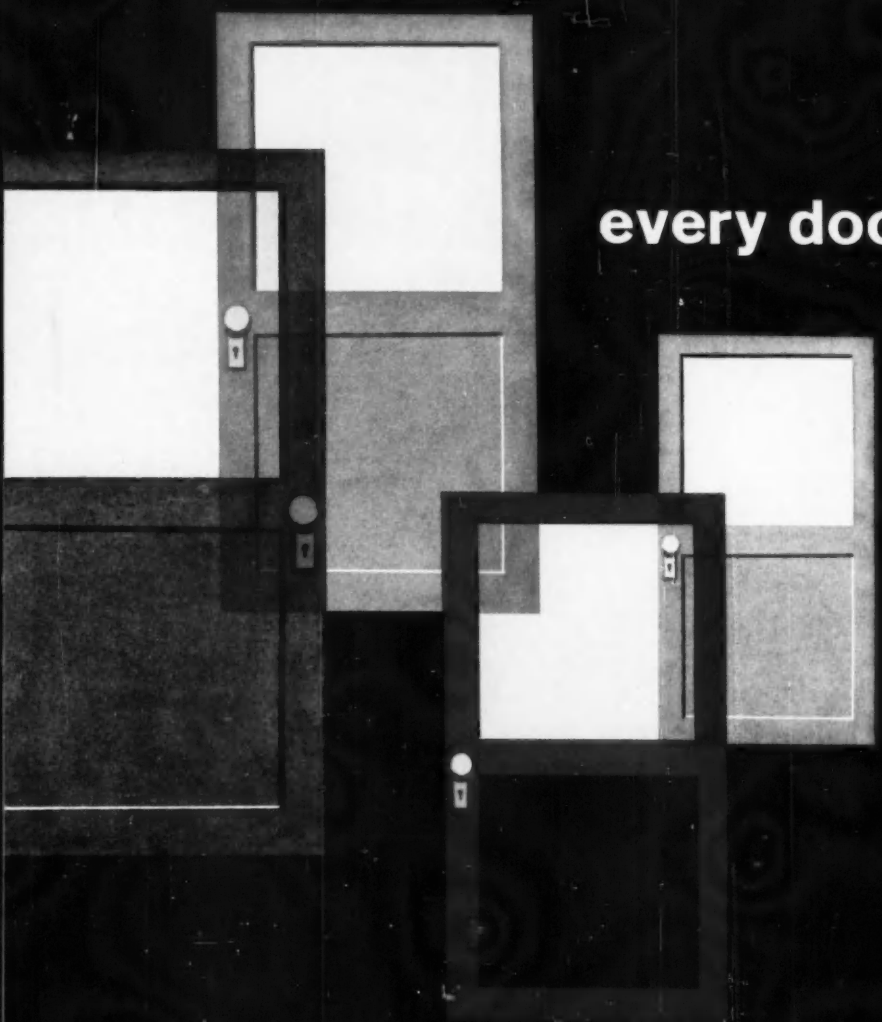
Sounds like 2-for-the-price-of-1, doesn't it?

* * *

We've long been convinced that residential air-conditioning should be sold on a merchandising basis rather than through an engineering approach.

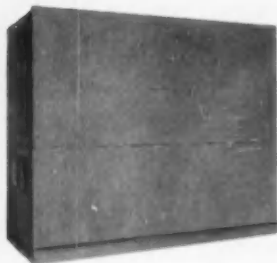
After all, the average homeowner

Circle No. 15 →

The image features three doors of different sizes and orientations, overlapping each other against a dark, textured background. The largest door is in the background, slightly to the left. A medium-sized door is in the foreground, overlapping the largest one. A smaller door is in the foreground, overlapping the medium one. All doors have a light-colored upper panel and a darker lower panel. The text "every door is open..." is positioned to the right of the doors.

every door is open...

Water cooled series.
Self-contained
packaged units
in 50-60-75 ton sizes.
Dependable in performance,
tops in economy.



Water cooled series.
Self-contained
packaged units
in 10-15 ton sizes.
Extra power reserve,
compact size.



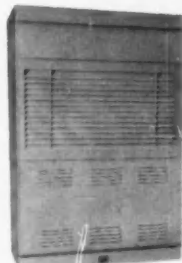
Water cooled series.
Self-contained
packaged units
in 3-5-8 ton sizes.
The ultimate in
economy and performance.



Water cooled series.
Self-contained
packaged units
in 30-40 ton sizes.
Wide versatility.



Water cooled series.
Self-contained
packaged units
in 20-25 ton sizes.
Industry's most
compact models.



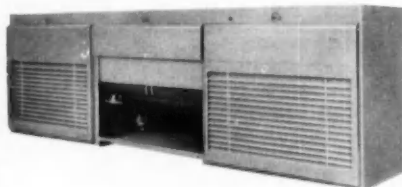
when you can supply the right unit...



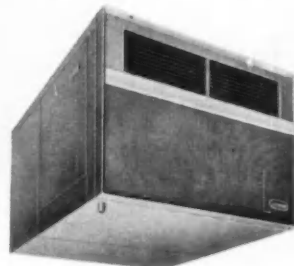
TAC air cooled condensers.
Remote units
in sizes from 2-50 tons.
Efficient, low cost answer
to water problems.



ACCB air cooled condensers
in sizes from 2-10 tons.
High capacity models
for most applications.



ACSC air cooled series.
Roof mounted cooling units
in 15-20 ton sizes.
Custom designed for
every type of installation—
with or without heating.

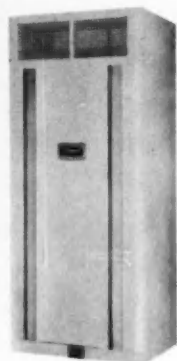


CMU space saving series.
Ceiling mounted,
completely self-contained
in 5 and 8 ton sizes.
Handsome styling,
compact size,
simple installation & service.

TYPHOON AIR

The most complete, most flexible line you can sell. Commercial, residential, industrial . . . Typhoon gives you units not just to meet competition, but to beat competition—every time for any job of any size. Typhoon can give you complete market coverage with its extensive array of smartly styled, economical, efficient air conditioners, heat pumps and heating furnaces. A full range of air cooled units from 2 tons to 20 tons, both packaged and as split systems. Water cooled units from 3 tons to 75 tons. Remote air cooled condensing units to 20 tons, water cooled to 75 tons. Gas and oil fired furnaces in horizontal, vertical upflow and counterflow types. And now, Typhoon's line of compact air-to-air heat pumps will open a new era in air conditioning for you. With Typhoon you can also offer the "space conscious" customer air conditioners, heat pumps and furnaces that suspend from the ceiling, install on the roof, in the attic, on the main floor or in the basement. In fact, models are available to go almost everywhere—inside or outside. Why be satisfied with

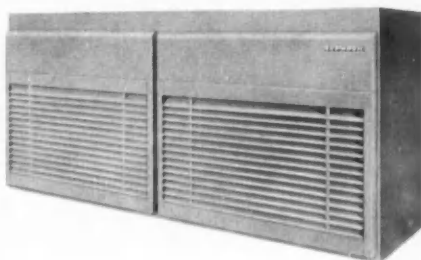
Water cooled series.
Self-contained
packaged units
custom made for
meat cutting rooms.
In 3-5 ton sizes.



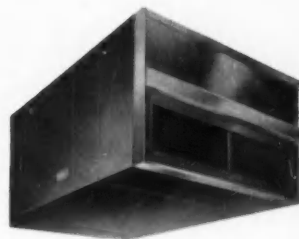
ACCU air cooled
condensing units.
Sizes from 3 to 10 tons.
Powerful, economical,
full rated capacity.



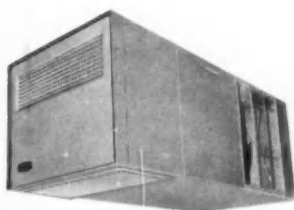
ACCU air cooled
condensing units.
15-18-20 ton sizes
arranged vertically
or horizontally
for best space utilization.



LSU low side series.
Air handling units
in sizes from 3-8 tons
and 10-15 tons.
Low silhouette,
smart styling,
easy installation & service.



at the right time...at the right price



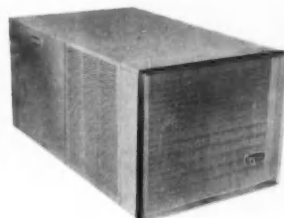
TAS cooling series.
Air cooled packaged units
in 2-3-5 ton sizes.
Beautifully styled,
ruggedly built.



Water cooled
condensing units
in sizes from 20-75 tons.
Completely packaged
for use with Typhoon
custom made low sides.



Water cooled
condensing units
in sizes 3-15 tons.
Completely packaged units
for use with Typhoon
custom made low sides.

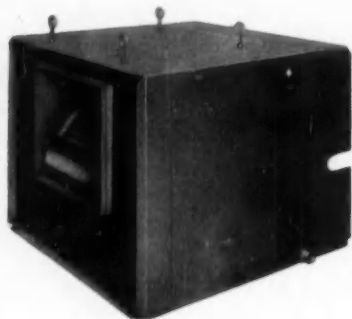


TAS heat pump series.
Air-to-air heat pumps
in 2-3-5 ton sizes.
One simple unit
that both heats and cools.

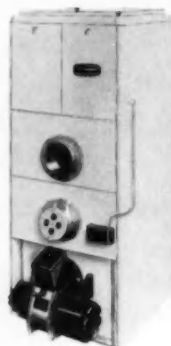
CONDITIONING

a "bob-tail" line when you know you can always count on getting a specific product for any purpose from Typhoon? Typhoon flexibility means a more profitable business for you! No job is too difficult, no job gets away, because **TYPHOON CAN SUPPLY CUSTOM-BUILT UNITS TO ANSWER YOUR SPECIFIC PROBLEMS.** You can specify the air discharge and return arrangements you need, and the most practical location for utility service and maintenance access openings. Various combinations of compressors, cooling coils and blowers in the same cabinet provide infinite variations in performance characteristics. This extreme flexibility gives you custom made units at mass production prices. The savings you make in installation and service costs become real profit dollars—profits you can keep. From every aspect, whether you're saving space for a supermarket, cooling a giant factory or air conditioning a Cape Cod house, you're always one step ahead when you're backed with Typhoon Custom-Built Quality Air Conditioning!

TAH blower coils.
Air handling units
with cooling
coils in
3 and 5 ton sizes.



Oil-fired furnaces.
96,000—134,000 BTU/HR.
Upflow or counterflow models.
For heating only,
or with matching
cooling equipment
for year-round use.



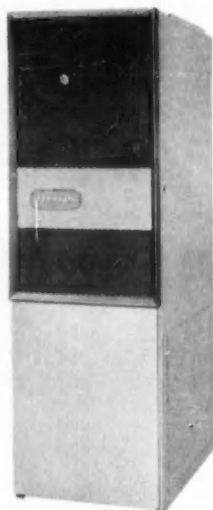
**Weather-selector
gas fired furnaces.**
100,000—200,000 BTU/HR
and 3 or 5 tons
perfectly matched,
cooling capacities.
Exclusive "Even Temp"
air control.



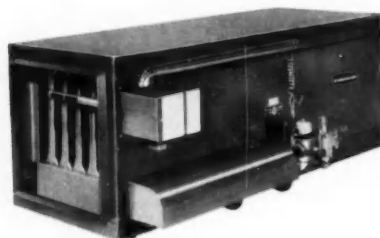
turn to Typhoon...



**Gas fired
counterflow furnaces.**
75,000—150,000 BTU/HR
heating capacities.
Cooling easily added.



**Weather-selector
gas fired furnaces**
in sizes from 75,000
to 200,000 BTU/HR.
A model for every home.



**Gas fired-forced
air horizontal furnaces.**
Capacity from
80,000—150,000 BTU/HR.
Attic, crawl space,
or ceiling suspended applications.



TAR air cooled series.
Available in
3 and 5 H. P. models.
Efficient, low cost,
air cooled condensing units.

... for exclusive features, exclusive units. And Typhoon's factory trained specialists are ready to help you solve any problem, close any sale, quickly, easily, profitably. For more and better business, write for full information.

TYPHOON
DIVISION OF HUPP CORPORATION

TYPHOON AIR CONDITIONING CO. ■ DIVISION OF HUPP CORPORATION ■ 505 CARROLL ST., BROOKLYN 15, N. Y.

er wouldn't recognize a Btu if it came up and bit him. Throw at him a lot of mish-mash about heat loss and heat gain, convection currents, and discharge velocities and you'll set his head to spinning. He'll be more confused than ever about what — or if — he ought to buy.

Basically, all he wants to know is this. Will the system you're selling keep his home comfortable? How much will it cost? And what kind of service can he expect if something goes wrong?

Answer these questions convincingly, and chances are your prospect will become a customer.

Latest support for this line of thinking comes from Amana Refrigeration, Inc. This company, long experienced in consumer attitudes through its activities in the home appliance field, has announced a stepped-up central air-conditioning sales program aimed at the existing home market.

"In this field," points out David B. Ruthstrom, who has been named to head up this operation, "it is the homeowner and his wife who must be sold, not the builder or the architect. That means we must talk to them in terms they can understand."

Amen.

* * *

Virtually all of the Federal Housing Administration's 74 district offices now report that they will include room air-conditioners in valuations for "package mortgages," subject to proper installation and appropriate architectural design.

Early last winter only 10 FHA offices said they were approving room air-conditioners in mortgages. Then in January this year FHA announced that field offices had been instructed to stop penalizing air-conditioning in their appraisals. That same month the Administration issued a revised mechanical engineering bulletin easing requirements on air-conditioning, particularly room units.

Adoption by nearly all field offices of a policy of including room air-conditioners in their valuations, and similar treatment for central installations, is the logical outcome of this train of events.

LEHIGH SELLS PLANT

Lehigh Mfg. Co., Lancaster, Pa., has sold its 64,500-sq.-ft. building and property to River Raisin Paper Co., Monroe, Mich., for \$235,000.

Lehigh, a division of Lehigh, Inc., manufactures commercial refrigeration condensing units.

The modern one-story building is located on a nine-acre tract, and includes two air-conditioned office areas, truck loading facilities, and a railroad siding.

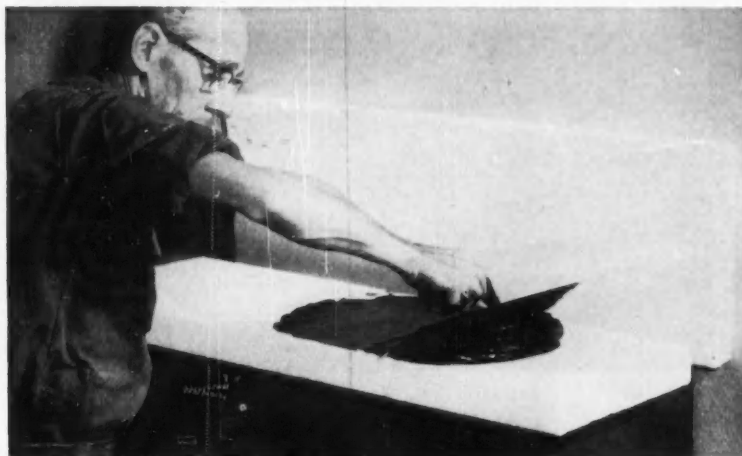
MERGER PLANNED BY J-M, LOF GLASS FIBERS CO.

Johns-Manville Corp. has proposed a merger with L.O.F. Glass Fibers Co. on the basis of one share of its common stock for 2½ shares of the glass company's common stock.

Believing that each company supplements the other, directors of L.O.F. Glass Fibers will call a special meeting of its stockholders to ratify the plan. Details of the proposed plan are to be announced.

Insulbond!

A new LAYKOLD adhesive for bonding impervious insulation blocks



After mixing, INSULBOND soon develops a buttery, easy-trowelling consistency.

INSULBOND is the new cold-applied, fast-setting cement specifically developed for bonding moisture-impervious insulation materials.

INSULBOND sets without moisture dissipation; holds blocks firmly in place.

INSULBOND is easy to prepare on the job. Just mix cold, fluid, special Laykold® binder and Lumnite Cement. The resultant mix soon becomes "buttery" and ready for spreading. Blocks are then set in place and adhesive allowed to cure.

Use the coupon for full technical data.



American Bitumuls & Asphalt Company

320 Market St., San Francisco 20, Calif. Perth Amboy, N. J.
Baltimore 3, Md. St. Louis 17, Mo. Cincinnati 38, Ohio
Mobile, Ala. San Juan 23, P. R. Tucson, Ariz.
Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore.

American Bitumuls & Asphalt Co.
P. O. Box 3495, San Francisco, Calif.

- ☐ Please send me specification G-35 covering the use of INSULBOND.
☐ Please send me information on all your insulation adhesives and coatings.
☐ Please have your Field Engineer contact us.

Name.....

Company.....

Address.....

City & State.....

Circle No. 16 on Reader Service Card



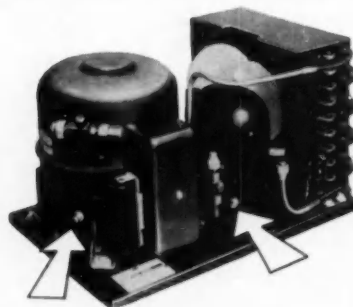
"I AM FRANKLY AMAZED AT BENDIX-WESTINGHOUSE"

"When we switched to Bendix-Westingshouse, we were amazed at the reduction in our compressor failures."

So wrote Mr. Chester A. Kuebler, President of Uniflow Manufacturing Company, after using several thousand of our condensing units. Uniflow manufactures a wide range of quality refrigeration products, demanding a high degree of satisfaction among many different types of customers.

Mr. Kuebler also tells us, "We are very happy with the fine service we have received from your company."

Join the 300 other new users of Bendix-Westingshouse products who agree with Mr. Kuebler. Each has discovered the extra value you get at no extra cost when you order Bendix-Westingshouse.



Liquid level test port (Arrow No. 1) for fast, accurate assurance of right refrigerant charge. (Arrow No. 2) Oil level check plug—for fast, accurate check of the compressor oil level. A typical example of superior Bendix-Westingshouse design.

Bendix-Westingshouse

EVANSVILLE, INDIANA

A Division of Bendix-Westingshouse Automotive Air Brake Company, Elyria, Ohio • Export Sales: Bendix International, 205 E. 42nd St., New York 17, N.Y.

Circle No. 17 on Reader Service Card



On Stream!

a brand-new plant
producing

Ucon

BRAND
refrigerants

Just completed... a spanking-new plant at Institute, West Virginia, built by Union Carbide Chemicals Company to supply 50 million pounds of fluorocarbons a year! That means new UCON Refrigerants are available now... bringing you *all* the advantages of the nation's newest refrigerants. You'll get...

UNSURPASSED QUALITY, meeting the strictest refrigeration and air conditioning industry standards for dryness and purity.

NEW PERSONALIZED SERVICE from technically-trained representatives—the UCON Refrigerants service force is the largest in the country.

ON-TIME DELIVERY from the largest network of distribution points serving the refrigeration and air conditioning industries.

FULL CHOICE OF UNIT SIZES. Meet *your* quantity needs with UCON Refrigerants supplied in standard-sized units.

TO GET FULL DATA ON UCON Refrigerants now, see your wholesaler, or write: UCON Refrigerants, Union Carbide Chemicals Company, 30 East 42nd Street, New York 17, N. Y. Call, write or wire us, any time! Attention, Dept. G-12.

"Ucon" and "Union Carbide" are registered trade marks of Union Carbide Corporation.



These 5 UCON Brand Refrigerants will meet your refrigeration and air conditioning needs

UCON Refrigerant 11 Trichloromonofluoromethane
UCON Refrigerant 12 Dichlorodifluoromethane
UCON Refrigerant 22 Monochlorodifluoromethane
UCON Refrigerant 113 Trichlorotrifluoroethane
UCON Refrigerant 114 Dichlorotetrafluoroethane

UNION CARBIDE CHEMICALS COMPANY Division of Union Carbide Corporation

Circle No. 18 on Reader Service Card



ONE-STOP GET ALL THESE FROM

**ONLY MUELLER
BRASS CO.** offers a complete
line of products for every refrigera-
tion need . . . Available at better
wholesaler's everywhere.

When you buy Mueller Brass Co. Streamline refrigeration products, your purchasing problems are simplified. For, in just one stop, your wholesaler can supply you with all the products you'll need to complete any commercial refrigeration installation. Mueller Brass Co. refrigeration products are available in the most complete range of styles and sizes in the industry . . . They more than meet the most rigid quality and code requirements.

Drymaster balanced filter driers

"Hi-Fi" filter block desiccant . . . super-fine monel screen filter tube and inlet distributor disc help give Drymaster superb filtering and drying properties. Drymasters are available in six different models with 36 different end connection sizes in flare and solder types. Copper extensions allow the use of either hard or soft solder . . .



UL APPROVED



MUELLER BRASS

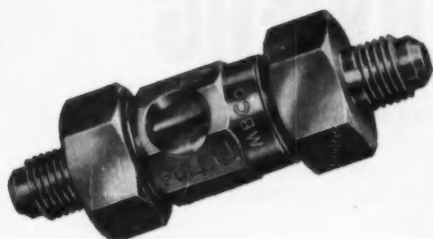
VAMPCO ALUMINUM PRODUCTS, LTD., STRATHROY, ONTARIO
Circle No. 19 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

SHOPPING

REFRIGERATION PRODUCTS

ONE DEPENDABLE SOURCE!



Sightmaster
liquid indicators

Tells at a glance the condition of refrigerant. Available in sizes from $\frac{1}{4}$ " through $\frac{3}{8}$ " interchangeable male flare, female flare and solder end connections. This makes possible 42 combinations ready for installation on any system.

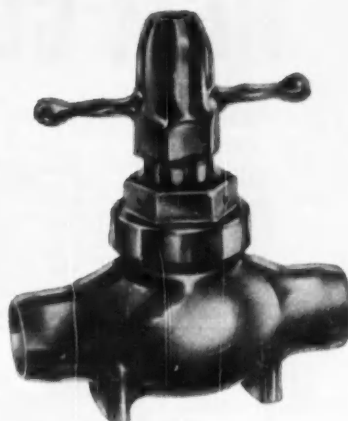
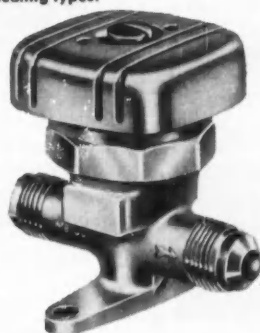


Safetymaster
pressure-relief valves

Provide positive action and high volume discharge without chatter or vibration. Available in safety-sealed standard pressure settings from 150 to 450 lbs. in straight through and angle types. Meets A.S.A. B 9 safety code, certified by National Board.

Globemaster
packed valves

Carefully engineered and constructed of highest grade materials to give long trouble-free service on every installation. Made in straight-through, angle, two-way and three-way models either backseating or non-backseating types.



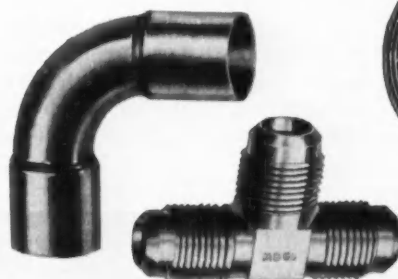
Linemaster valves

Feature super-sealing with triple diaphragm construction. Linemaster regular (non Backseating) and Linemaster Special (Backseating) are available in two-way, three-way, straight-through and angle, plus hand expansion and purge types in all popular end connections.

UL APPROVED

Streamline
copper tube and fittings

Fine quality cleaned, dehydrated and sealed copper tubing of uniform soft temper for easy bending and hard-drawn copper tube in straight lengths in a variety of sizes. A complete line of high quality solder-type fittings manufactured from seamless copper tubing and flare fittings from forged brass or brass rod.



New, revolutionary slide-guide helps you select the correct Drymaster filter drier for every installation quickly and easily... Available free... Send for yours today.



Big, fact-filled catalog R-157 gives complete information on all Mueller Brass Co. refrigeration and air conditioning products. Get your copy today.

CO. PORT HURON 13, MICHIGAN

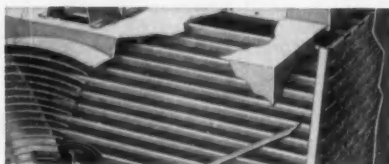
Exclusive Canadian Representative for Mueller Brass Co. Air Conditioning and Refrigeration Products

Circle No. 19 on Reader Service Card

SO HALSTEAD & MITCHELL ENGINEERS SAID . . .

FOR LIKE-NEW PERFORMANCE YEAR AFTER YEAR— H&M COOLING TOWERS

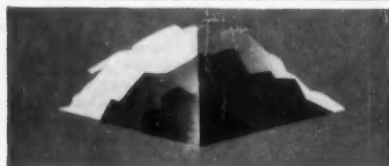
Halstead & Mitchell Cooling Towers give rated performance even after years of operation



Special pressure creosoting of the wood fill prevents formation of fungus and algae which can build up and restrict the tower air flow, reducing system capacity. Only Halstead & Mitchell Cooling Towers carry a 20-Year Guarantee against failure due to fungus attack or rotting.

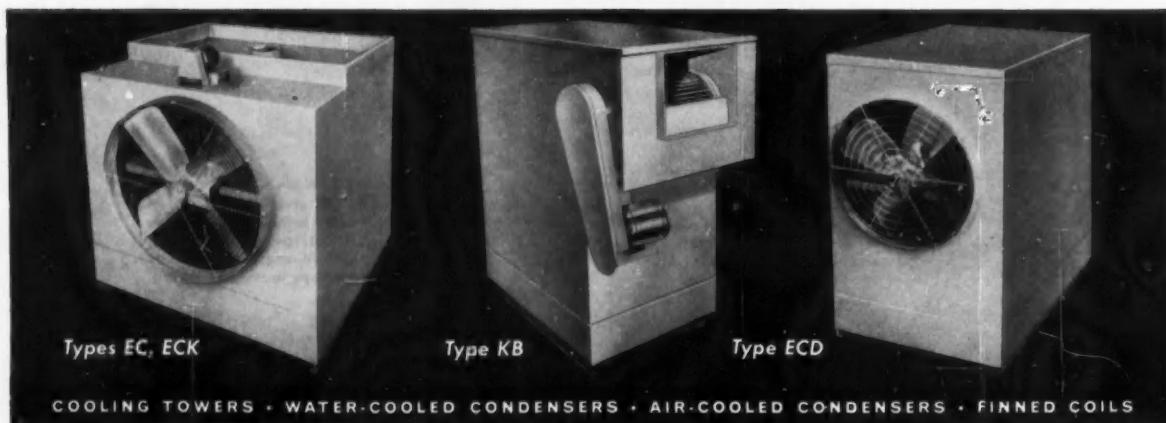


Sealed fan bearings are permanently lubricated, require no maintenance.



Tower housings are completely protected against corrosion by separate coatings of Vinsynite, Vinyl zinc chromate, and chlorinated rubber applied *after assembly*. Every edge, every corner is sealed against rust on all H&M Cooling Towers.

H&M Cooling Towers are available in propeller fan, centrifugal fan, belt drive, direct drive, and take-apart models. Capacities of 2 through 125 tons. For complete information contact your local distributor, or write to Halstead & Mitchell, Bessemer Bldg., Pittsburgh 22, Pa.



Types EC, ECK

Type KB

Type ECD

COOLING TOWERS • WATER-COOLED CONDENSERS • AIR-COOLED CONDENSERS • FINNED COILS

NEW CHASE DISPOSABLE REEL PUTS THE FREEZE ON COSTS!



New cardboard disposable reels on assembly line at Anheuser-Busch Refrigerated Cabinet Division plant. Note large 16" arbor hole in reel specially designed by Chase to meet customer's specific needs.

Anheuser-Busch Cabinet Division finds new Chase disposable reel for copper refrigeration tube saves time and materials and cuts costs

Since purchasing Chase copper refrigeration tube on the new Chase disposable reel—on a size especially developed for them—Anheuser-Busch has saved real money on their ice cream cabinet production lines. Here's why:

- 1. Increased Production**—long lengths of tube mean fewer set-up and threading operations, decreasing down-time.
- 2. Scrap Elimination**—losses caused by small coil ends are almost eliminated.
- 3. No Kinks or Entanglements**—thanks to the special way the tube is wound on reel.
- 4. Inventory Reduction**—no need to carry stocks of varying lengths for various sizes of cabinets.
- 5. Work Saved**—new type Chase reels are easy to handle, lighter in weight. No storage problems of empties, no inventory, no returns to keep track of. Just throw them away.

You can get Chase copper refrigeration and air conditioning tube on the new disposable reels in $\frac{3}{8}$ ", $\frac{1}{2}$ " and $\frac{5}{8}$ " OD sizes, lengths from 400 to 3,000 ft. For standard or specially-designed reels, ask your nearest Chase warehouse or District Office—or write Chase at Waterbury 20, Connecticut for full information.

Chase

BRASS & COPPER CO. WATERBURY 20, CONN.
Subsidiary of **Kennecott Copper Corporation**

The Nation's Headquarters for Aluminum, Brass, Copper and Stainless Steel

Atlanta Baltimore Boston Charlotte Chicago Cincinnati Cleveland Dallas Denver Detroit Grand Rapids Houston Indianapolis Kansas City, Mo. Los Angeles Milwaukee Minneapolis Newark New Orleans New York (Maspeth, L.I.) Philadelphia Pittsburgh Providence Rochester St. Louis San Francisco Seattle Waterbury

Circle No. 21 on Reader Service Card

ANNOUNCING NEW MIDGET



FILTER DRIER

FOR SYSTEMS
UP TO 3/4 TON

BODY
DIAMETER
ONLY

1 1/8"

•
LENGTH

1 3/4"

•
WEIGHT

3 1/2 OZS.

SMALLER
THAN A
GOLF BALL

DRY
AS THE
SAHARA

With body measuring only 1 1/8" diameter x 1 3/4" long, systems up to 3/4 ton capacity can now have TMC Molecular Sieve Filter-Drier protection regardless of space limitations. And its low price matches its small size!

Design and construction is the same as the four larger TMC sizes which pioneered the use of the Linde Molecular Sieve.

With 19 times the efficiency in 1/10 the size, TMC Filter-Driers have rewritten the specifications of manufacturers of refrigeration and air conditioning units.

They have been approved by nationally recognized laboratories because of their radically improved Moisture Removal, Filtration, Acid Removal, and Low Pressure Drop.

Phone or write for money saving facts on this new TMC Filter-Drier as well as four other sizes for systems up to 15 tons.

TUBE MANIFOLD CORPORATION

415 Bryant Street, N. Tonawanda, N. Y.

Another Product of The World's Largest Manufacturer of Liquid Receivers



Break the **BARRIER** and close the sale



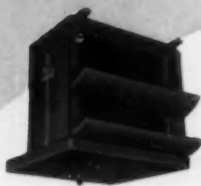
A service offered through subsidiaries of
Commercial Credit Company, Baltimore . . .
Capital and Surplus over \$200,000,000 . . .
offices in principal cities of the United States
and Canada

Most of your prospects need their cash reserves and usual lines of credit for current operations. Break through this financial barrier. Make it easier for the prospect to sign on the dotted line by including financing arrangements. **COMMERCIAL CREDIT's** Refrigeration Plan is backed by many years' experience in your industry—experience in handling financing for thousands of commercial refrigeration and air conditioning installations.

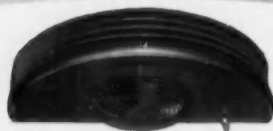
Let us show you how **COMMERCIAL CREDIT** experience and know-how saves you time and money . . . and helps you close sales with less delay. Call our office in your city, or write **COMMERCIAL CREDIT CORPORATION**, 300 St. Paul Place, Baltimore 2, Md.

Make your proposals complete . . . Include financing with **COMMERCIAL CREDIT PLAN**

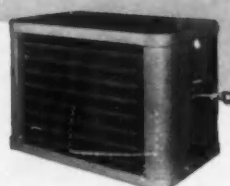
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Pacemaker Unit Coolers.
Ten models.



Radial Unit Coolers.
Eight sizes.



Two Way Unit Coolers.
Five sizes.

McQUAY

Means Quality

FOR EVERY REFRIGERATION
OR AIR CONDITIONING NEED



Hideaway Seasonmaker Air
Conditioner. Four sizes, ½ to 5
ton nominal cooling capacity.



Space Miser
Unit Cooler.
Wide range of
sizes in normal
and low tem-
perature units.

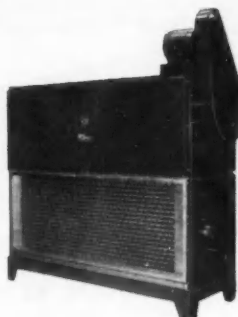
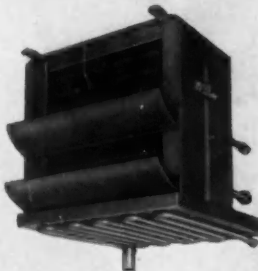


Ceiling Mounted ZEROPAK Prod-
uct Cooler. Six compact models.

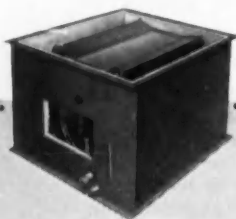


Floor Mounted Seasonmaker Air
Conditioner. Four sizes, ½ to 2
ton nominal cooling capacity.

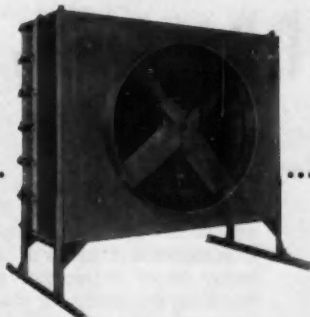
ZEROFROST
Unit Coolers.
Low tempera-
ture coolers in
eight sizes.



Floor Mounted Product Coolers.
Nine sizes, 4, 6 or 8 row coils.



Vertical Residential Evaporator.
Five models in 2, 3, 4, 5 and 7½
ton nominal capacities.



Aircon Air Cooled Condensers. Available
up to 50 tons in a single unit.

McQuay
Means Quality

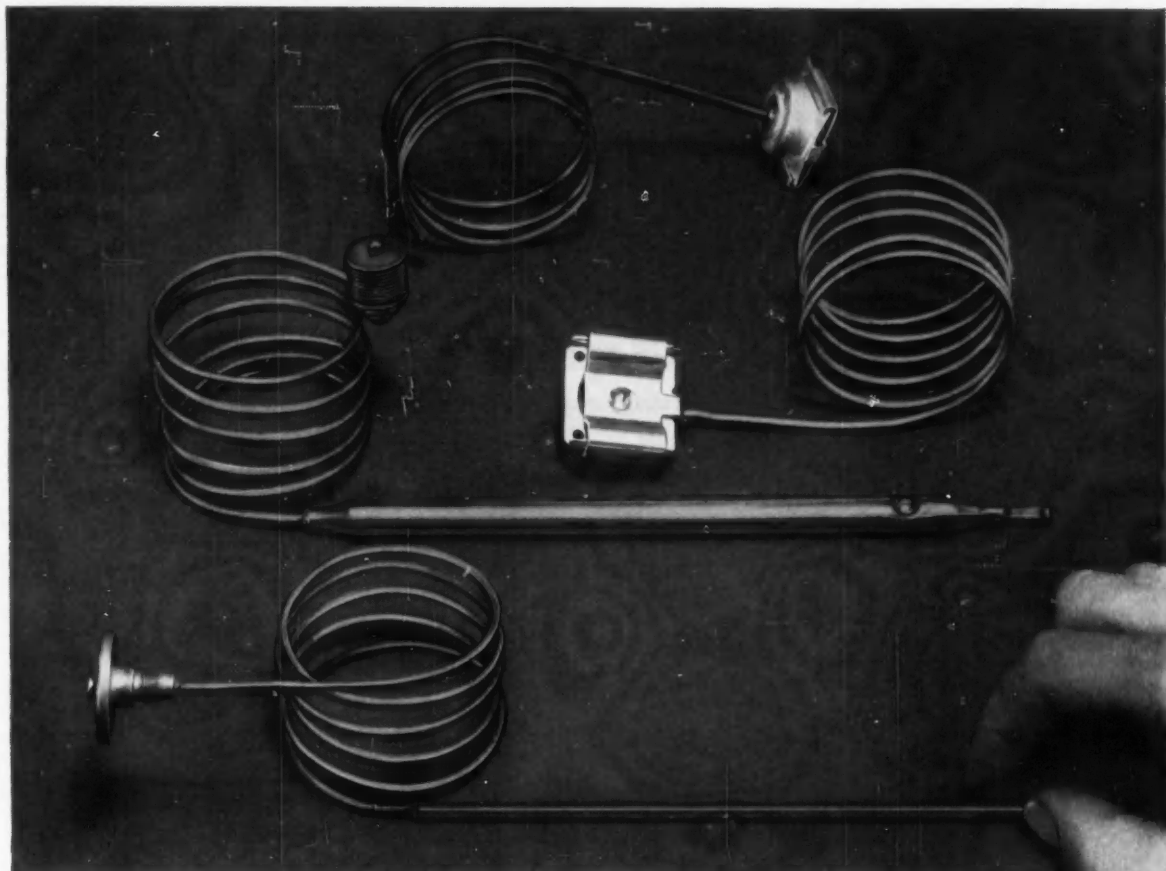
McQuay INC.



AIR CONDITIONING • HEATING • REFRIGERATION

Circle No. 24 on Reader Service Card

Contact your nearest McQuay
wholesaler, or write direct to
McQUAY, INC.
1643 Broadway Street N.E.
Minneapolis 13, Minnesota



Top: Two gas-filled sensor assemblies, consisting of a phosphor bronze bellows and a length of capillary tube, used in household refrigerators. **Center:** a liquid-filled sensor assembly, with bellows and sensing bulb connected by capillary tube used in a gas space heater. **Bottom:** a Robertshaw-Bridgeport Diastat heat sensing unit with diaphragm and sensing bulb connected by capillary tube, used in electric range oven controls.

Temperature sensors require high, uniform quality in capillary and bulb tube at Robertshaw-Bridgeport

The temperature sensing elements made by Bridgeport Thermostat Division of Robertshaw-Fulton Controls Company provide a simple and accurate means of controlling temperatures in refrigeration, air conditioning, heating, and cooking equipment. Important parts of these elements are furnished by French Small Tube Division of the American Brass Company.

Robertshaw-Bridgeport can provide manufacturers of controls and appliances consistently accurate calibration and dependable operation over long periods of uninterrupted service, largely because of the close precision quality of French capillary tube and fabricated

sensing bulbs. These specially fabricated tube products must be scrupulously clean, meet strict dimensional specifications, and be free from flaws that would cause faulty operation. Robertshaw-Bridgeport also looks to the supplier for creative technical services to help meet the ever-changing needs of its customers as new models and applications come up. The French Small Tube Division of The American Brass Company, specialists in bulb and capillary tubing, have been consistently meeting these requirements.

Quality Tube and Creative Technical Services. Whether you need capillary tube, restrictor tube, bulb and tube

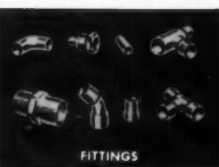
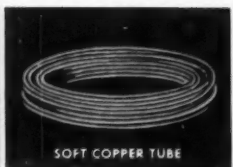
assemblies—in either copper or aluminum—the French Small Tube Division has specialists to help you find the most economical way to do a job—the experience and facilities to turn out the tubing you need. For further information or technical assistance, write: French Small Tube Division, The American Brass Company, Box 1031, Waterbury, Connecticut.

ANACONDA®

CAPILLARY AND RESTRICTOR TUBES

Made by French Small Tube Division of
THE AMERICAN BRASS COMPANY

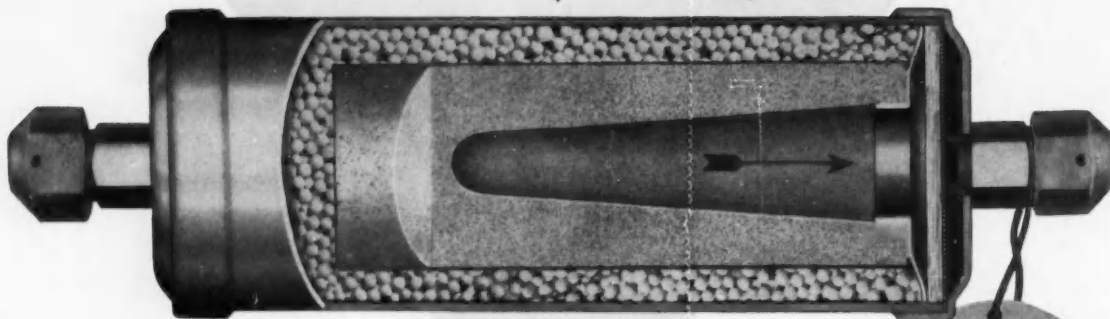
ANACONDA PRODUCTS FOR THE REFRIGERATION AND AIR-CONDITIONING INDUSTRY



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"DRI-COR"

The Filter-Drier You'll Buy
Again, Again,
and Again!



LISTED BY UNDERWRITERS' LABORATORIES,
INC. UNDER RE-EXAMINATION SERVICE
FOR MAXIMUM WORKING PRESSURE
OF 500 P.S.I. OR MINIMUM BURSTING
PRESSURE OF 2500 P.S.I.

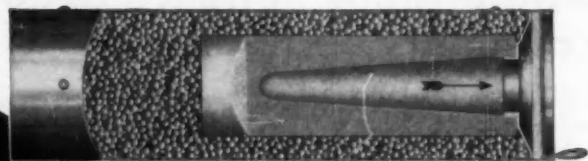


THEY are designed to give you greater satisfaction. That's why jobbers recommend them and servicemen everywhere have switched to "DRI-COR".

With a ceramic fired desiccant filter-core cushioned in a bed of blended MOLECULAR SIEVES AND ACTIVATED ALUMINA, they provide high capacity drying even at relatively high temperatures, micron filtration, efficient acid removal and low pressure drop.

Because they are pressure sealed, "They Hiss and Tell" when you loosen an end connection seal cap at time of installation—proving they are factory fresh and factory dry.

STOCKED AND SOLD BY LEADING JOBBERS.



Also available...
"Dri-Cor" Filter-Drier
Cartridge Type
Angle Driers.



They have the same features as "DRI-COR" Filter-Driers, except that after being thoroughly reactivated each cartridge is packed in a metal moisture-proof container.

LISTED BY UNDERWRITERS' LABORATORIES,
INC. UNDER RE-EXAMINATION SERVICE FOR
MAXIMUM WORKING PRESSURE OF 350 P.S.I.



HENRY VALVE CO.

MELROSE PARK, ILLINOIS (Chicago Suburb)
Cable: Hevalco, Melrose Park, Illinois

VALVES, DRIERS, STRAINERS AND ACCESSORIES FOR
REFRIGERATION, AIR CONDITIONING AND INDUSTRIAL APPLICATIONS

Circle No. 26 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

A Word about Next Year's BUSINESS

"I F I could only get good salesmen . . ." That statement has been made to me more times than I can count in the last ten years. In fact, it has been made so often that my standard reply has been, "Well, why can't you?" And the answers range from a simple "I don't know" to a two-hour explanation of why not.

If you have made this statement yourself, then you will be most interested in an article that will appear in the January issue of REFRIGERATION & AIR-CONDITIONING BUSINESS. It will be the cover feature story, so be on the lookout for it.

* * *

The current issue winds up George Webster's series of articles on business management entitled "You're The Boss." Reader reaction to this series has been more than gratifying. Letters have come in from all over the country and from all levels of the industry requesting copies of back issues or reprints of the articles. We are pleased to have offered you this service through the pages of BUSINESS. Plans are now being made to give you more from Webster some time during 1959.

* * *

I've just returned from the West coast. It's been a couple of years since I was last in Los Angeles. Smog has always been on the tongues of people out there, but this trip it was more of a subject of complaint. Cab drivers, homeowners, bellboys, — in fact, everybody — was complaining. It sure seems to me that air cleaners coupled with air-conditioning could be the answer, yet there is not as much activity in these lines as you would imagine. Maybe they would rather gripe about it. Still, I can't think of a better market for our products in the face of that eye-stinging, throat-rasping air.

Talked to some dealers in Phoenix, Arizona. Their weather, as usual, was ideal for air-conditioning this year. Yet, volume did not come up to a year ago. Business conditions were blamed. Couldn't help but think of those areas where not only was general business slow, but July temperatures stayed down around 65 to 70 F. These two factors combined are pretty tough to lick.

Let's all pitch in to help make 1959 a different story for our business. Meanwhile, to all you who read our magazine we wish a very merry Christmas and a happy and prosperous New Year.

Good luck and good selling.

Thom Muir

Concluding a 12-part series:

YOU'RE THE BOSS

JANUARY

How To Analyze
Your Business

FEBRUARY

Business
Philosophy

MARCH

Planning Ahead
for Profits

APRIL

Organizing for
Effective Control

by GEORGE C. WEBSTER, president, George C. Webster and Associates, Inc., Management Consultants

How To Plan

BUSINESS PLANNING is a continuous cycle. Before you actually conclude one year's business you must start laying the groundwork for the next. First step in this direction is the preparation of a budget for the coming year. And now is the time to get at it.

The first 11 articles in this series have been aimed at increasing your understanding of various phases of your business, and showing you how to operate them more effectively and more profitably. In this concluding article we will try to help you lay your plans and establish your budget for 1959.

In doing this we are going to

assume that you have read all of the previous articles in the series. As we go along we are going to refer to material contained in these other articles, and we suggest that you have them handy before you start to read one.

Planning for next year should start with a re-evaluation of your business philosophy, as covered in Part 2 of this series (February 1958 issue of Refrigeration & Air-conditioning BUSINESS).

Take a critical look at what you have accomplished this year and decide, as a matter of your own personal philosophy, where you

would like to be at this time next year. Allow for improvement, of course, but don't set fanciful goals for yourself. Trying to achieve such goals would only frustrate you and direct your energies away from profitable activity.

Gear your business to your known potentialities. Direct it along the lines of those things that you do well and that yield maximum personal satisfaction to you.

With your basic purpose and philosophy established, you can start on your sales forecast. The procedure for forecasting is covered in Part 3 (March 1958 issue). It can be used to arrive at your overall forecast for 1959.

Using the figures developed in Part 3, we find that Hometown Heating & Cooling Co. could do \$420,000 if it follows the trend. We should now try to determine if business conditions warrant this expected volume. This is a matter of judgment, and must be left up to you. But before you make your forecast, determine these things:

1. Is population still growing?
2. Has the "recession" abated in your area?
3. Is overall income continuing to increase?
4. Is home building increasing?
5. Are your 1958 September, October, and November sales ahead of 1957 for the same period? By how much? (This is a critical figure.)
6. What about competition?
7. Is the general economic outlook in your area good?
8. Is the outlook good for your particular line of business?

SALES FORECAST BY MONTH - HOMETOWN HEATING + COOLING CO.

	Actual Sales 1956	Actual Sales 1957	Actual Sales 1958	3-year Average	% By Month	1959 Mechanical Forecast	1959 Judgment Forecast
Jan	14,000	16,000	18,000	16,000	4.92	19,200	18,000
Feb	12,000	20,000	18,000	16,666	5.12	20,400	20,000
Mar	27,000	27,000	31,000	28,333	8.72	34,900	36,000
Apr	31,000	32,000	34,000	32,333	9.95	39,900	40,000
May	35,000	37,000	41,000	37,666	11.60	46,400	44,000
Jun	36,000	40,000	44,000	40,000	12.30	49,200	46,000
Jul	34,000	36,000	38,000	36,000	11.09	44,300	44,000
Aug	25,000	27,000	29,000	27,000	8.30	33,200	34,000
Sep	23,000	23,000	26,000	24,000	7.38	39,500	40,000
Oct	29,000	28,000	30,000	29,000	8.92	35,700	34,000
Nov	18,000	23,000	22,000	21,000	6.46	25,900	26,000
Dec	16,000	16,000	19,000*	17,000	5.24	20,900	18,000
Total	300,000	325,000	350,000	325,000	100.00	400,000	400,000
Monthly Average	25,000	27,093	29,166	27,093	8.33	33,333	33,333

* Estimated

MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	THIS MONTH
Accounting as a Tool of Control	Control of Expenses	Control of Job Costs	Control of Sales	Control of Advertising	Financing Your Operations	Employee Relations	Simplified Budgeting for 1959

Your Budget for 1959

Weighing these factors will help you arrive at a judgment which will place your anticipated 1959 volume above, below, or on your trend line. Although this process may seem a bit mysterious to you, you will find that continued forecasting over a period of years develops your judgment and allows you to make this type of prediction with a fair degree of accuracy.

The judgment forecast for Hometown Heating & Cooling Co. is \$400,000. This is based on the fact that almost every indicator points to increased business activity, but the recovery in Hometown's area is not developing as rapidly as expected. As a result, the firm's September, October, and November sales are just about 12% over the same period of last year. A \$400,000 volume for 1959 would allow for a 14% increase over 1958, which seems about all that can be obtained.

Now you are ready to break down the sales forecast by month and prepare your sales budget. Use a forecast chart like the one shown here to accomplish this.

First list your sales by month for the past three years in the first three columns. Then put each month's average in the fourth column. Next take the monthly figures as a percent of the total average sales and place this figure in the fifth column. Now multiply these percentages by the total volume forecast (\$400,000 in the case of Hometown).

This is called the mechanical forecast. Examine it carefully,

comparing each month with the previous year's figure. Then adjust the monthly figures to suit your own personal judgment.

Put these adjusted figures in the final column (Judgment Forecast). This column now represents your sales budget. It is the base upon which you will build your other budgets and your plans for your organization during the coming year.

Next step is to make sure that your organization fits your budget. Article 4 (April issue) will help you lay out your organization around your planned objectives, making sure that there is sufficient personnel and that each person has a specific job or jobs to do. Individuals responsible for divisions within the company should receive the sales budget and participate in the establishment of the final figures, since their cooperation will be necessary to achieve the desired results.

In Article 5 (May issue) you learned how to construct a break-even chart. This chart is of particular value in establishing your overall level of expenses, which will serve in preparing the expense budget. It shows the important relationship of gross profit, volume, expenses, and net

profit. You can better develop these figures by means of a past-three-year tabulation like that shown here for the Hometown organization.

Hometown knows that a 5% return is what is needed to show satisfactory results on its investment. It intends to achieve this return by holding expenses to 25% of sales, and keeping the gross profit at 30%. The break-even chart which you can now prepare will show what happens to net profit at various levels of volume, gross profit and expenses.

The expense budget should be your next consideration. The 25% expense figure arrived at previously is your overall expense control figure into which your expense budget must fit if you are to obtain satisfactory results from your business operations.

The expense budget chart reproduced with this article is used to determine expenses item by item. First you put down expenses for the past three years, compute the averages, and then determine what percentage of sales these averages represent. Now multiply each percentage by the sales budget (\$400,000 in the case of

Continued on next page

	Actual 1956	Actual 1957	Actual 1958	3-yr Average	Budget 1959
Gross Profit	29%	28%	30%	29%	30%
Expenses	25	23	27	25	25
Net Profit	4%	5%	3%	4%	5%

HOW TO PLAN YOUR BUDGET

Hometown) and you have what is called the mechanical budget.

While this mechanical budget gives you a starting point from which to work, these figures must be adjusted somewhat if they are to form a sound and realistic basis for operations during the coming year. For instance, you know that certain expenses, being fixed in nature, will not rise at all next year. You also realize that there are certain other expenses that simply won't fit into the amount allowed by the mechanical budget figure. The adjusted figures will form your judgment budget.

In studying your expenses pay special attention to those which have not been successfully controlled in the past, and decide upon some corrective action to hold these in line. Some expenses may have to go up because you will want to use them either to achieve the added volume (as in the case of sales and advertising costs) or to hold down other expenses (as in buying a new truck, thereby increasing your depreciation cost but lowering your repair and maintenance costs).

Budget your advertising and sales costs according to the expense budget arrived at. Then establish controls over both sales and advertising as outlined in Parts 8 (August issue) and 9 (September issue) of this series.

Once you have arrived at the annual budget, break it down by month to use in your monthly income and expense statement, as described in Part 6 (June issue). The monthly breakdowns are worked out in the same method as the annual breakdown, first making a mechanical budget and then a judgment budget.

Maintaining your gross profit is always a problem. After establishing a realistic gross margin you must set up controls to maintain this gross profit.

The first aspect of control is in the selling price. The second is in the control of job costs. Aside from establishing your sales prices to reach the 30% gross profit figure, you must also tie them into sales commissions and bonuses. Your salesmen, in hitting their sales volume objectives, can cause the margin to slip by yielding on price or by throwing in extras.

No salesman should receive a bonus unless his gross profit figure

is met. On all profit over this figure, he could receive as much as 50%.

Control of job costs is covered in Part 7 (July issue). This gives both an individual control form as well as a weekly and year-to-date report form.

Check your financial condition carefully in planning for next year. By preparing a cash budget as outlined in Part 10 (October issue) you will see if your finances are sufficient to handle your planned operation. Take your cash budget to your banker and let him know about your plans. Then arrange for any seasonal borrowing that you anticipate may be necessary.

Making the plan work, once you have established it, is the key to success. When you have completed your plans for 1959, let your entire organization know about them. Be sure that the goals are enthusiastically accepted as established. Be sure that each employee understands what his particular responsibility is in the overall plan.

Set a regular time for review of performance against goals, using the statement of income and expenses described in Part 6 (June issue). This is the most important part of operating your plan.

If objectives aren't being met, find out why. Then decide how to correct this situation. If objectives are being met, give your people a pat on the back and tell them not to let down. Hold a monthly meeting to review the entire operation with all employees so that they will know where additional effort and cooperation are needed.

Don't lose enthusiasm for your plan or diminish your effort in making it work. Remember that planning and budgeting are important aspects of your business in which you will develop skills only by actual experience. Once this experience is gained you will be able to utilize the resources of your business in the most profitable way.

EDITOR'S NOTE: This concludes the "Your the Boss" series. For information on reprints see facing page.

EXPENSE BUDGET* - HOMETOWN HEATING + COOLING CO.								
	1956	1957	1958	3-Yr. Avg.	3-Yr. %	Mechanical Budget	Judgment %	Budget Dollars
Selling Expenses								
Advertising								
Sales Commissions								
Sales Expense								
Total	36,000	32,500	43,000	37,166	11.41	45,000	12.0	48,000
Variable Expense								
Auto & Truck								
Rod Debits								
Donations								
Employee Benefits								
Insurance								
Payroll Taxes								
Printing, Stationery								
Salaries								
Telephone								
Travel & Entertain.								
Unclassified								
Total	25,000	26,300	26,500	25,933	8.0	32,000	8.0	32,000
Fixed Expenses								
Dues & Subscript.								
Legal & Accounting								
Licenses & Bonds								
Pers. Prop. Taxes								
Depreciation								
Heat-Light-Water								
Rent								
Repairs to Equip.								
Total	14,000	16,000	18,000	16,000	4.91	19,600	5.0	20,000
Grand Total	75,000	74,800	87,500	79,100	24.3	97,200	25.0	100,000
Sales for Year	300,000	325,000	350,000	325,000	—	400,000	—	400,000
Percent of Sales	25%	23%	27%	24.3%	—	24.3%	—	25%

*Note: Individual items under each grouping should be determined just as major groupings have been.

YOU'RE THE BOSS

George Webster's 12-part "text-book" on practical business management is now complete.

Topics discussed in these 12 articles, as published in the January-December 1958 issues of Refrigeration & Air-conditioning BUSINESS, are:

How To Analyze Your Business
Business Philosophy
Planning Ahead for Profits
Organizing for Effective Control
Accounting as a Tool of Control
Control of Expenses
Control of Job Costs
Control of Sales
Control of Advertising
Financing Your Operations
Employee Relations
Simplified Budgeting for 1959

Reprints of the entire series are now available. These sets of reprints (12 articles per set) are priced as follows:

1 to 5 sets	\$4.20 each
6 to 15 sets	\$3.00 each
16 to 50 sets	\$2.40 each
51 sets and over	\$1.80 each

Reprints of each individual article in this 12-part series also are still available at the following prices:

1 to 5 copies	35¢ each
6 to 15 copies	25¢ each
16 to 50 copies	20¢ each
51 copies and over	15¢ each

Please send cash, check or money order with all orders of less than \$5.00.

Address all orders to:

Refrigeration & Air-conditioning Business

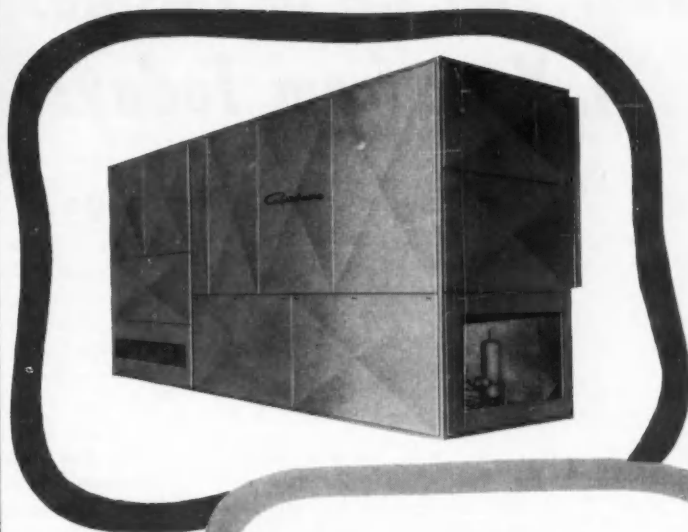
812 HURON ROAD
CLEVELAND 15, OHIO

BUSINESS • DECEMBER 1958

For Unmatched Flexibility National - U.S.

Central Station

Packaged Air Conditioning



7½-60 h. p.

water-cooled

or

evaporative condenser

Water-cooled or evaporative condenser models in nine sizes from 7½ to 60 h.p. provide a selection from which a combination can be arranged to fit any particular situation. Each model is available in different arrangements, matched to meet any space requirements.

All units are completely engineered and packaged—require only power, ductwork and water supply connections for quick installation. And, all are factory pre-tested to minimize performance testing time.

Write today for Form AC-1001 describing the new Capitolaire Central Station Packaged Air Conditioning System, or contact your nearest National-U.S. representative. He'll be glad to help you.



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CORPORATION

HEATING AND AIR CONDITIONING DIVISION
Johnstown, Pennsylvania

In Canada: 77 York Street, Toronto

58-21

Sixty years in thermal hydronics

Circle No. 27 on Reader Service Card

Will You Be in Business A Year from Today?

**see answer on facing page*



BAD MANAGEMENT causes more business failures among air-conditioning dealer-contractors than any other factor. That's the inescapable conclusion to be drawn from a survey just completed by Dun & Bradstreet, Inc.

During the first nine months of 1958, 280 air-conditioning, plumbing and heating contractors went out of business with a loss to creditors of \$9,092,000, this study shows. This compares with 257 such firms that closed their doors with liabilities of \$10,642,000 in the same nine months of 1957. Thus 1958 failures for this period represented an increase of 9% in numbers but a decrease of 15% in liabilities.

A total of 331 such contractors failed during the full year of 1957 with liabilities of \$12,164,000. This was a record high in number of failures since these statistics were first compiled in 1934. The resultant liabilities were second only to the all-time high of \$12,997,000 reported for 1956.

The average liability for each air-conditioning, plumbing and heating contractor that failed in 1957 was \$36,749, a decrease of 11% compared to the average liability per failure of \$41,130 in 1956. This downward trend in average liabilities would seem to be continuing into 1958. For the first 9 months of this year a 22% decrease was recorded.

Dun & Bradstreet's failure figures include only those firms that failed with loss to creditors. Voluntary retirements from business, transfers of ownership, or any firms which closed their doors owing no bills are not included in these tabulations.

Far more significant than how many such firms failed, however, is *why* they failed. The answer to this question can help dealer-contractors still in business avoid the same pitfalls.

For this reason, Dun & Bradstreet tries to get at the cause behind every failure. To do this, the Dun & Bradstreet reporter talks not only with the principals of the defunct business but also with the firm's banks, suppliers, and other outside sources in order to obtain as objective an opinion as possible.

Summing up all of the complex factors which cause a business to fail admittedly has certain hazards and limitations. Sometimes the facts themselves are hard to get. Some reporters will evaluate the known factors more accurately than others. So the final analysis, however cold and exact the figures may look on paper, still may contain some discrepancies.

But when you add up the causes reported in all of these failure studies and find a definite pattern emerging, this pattern certainly should constitute a danger signal for firms still in business.

What is the cause of a business failure? Over the years one pattern has recurred consistently in Dun & Bradstreet's studies. In most instances the failure can be attributed directly to bad management. This bad management generally can be traced to a clearly identifiable human weakness on the part of the people running the business. This human failure may be in judgement, personality, decision, or know-how.

The number of air-conditioning, plumbing and heating contractors that fail is too small in itself to break down separately, but the study of failure causes among all construction businesses provides an excellent guide against which such contractors can check their own operations. Doing this as conscientiously and objectively as possible today may mean the difference between making a profit or being out of business tomorrow.

Here are the results of Dun & Bradstreet's study

of the causes of failure for the 2,158 construction businesses (including air-conditioning, plumbing and heating contractors) that went out of business in the year ending June 30, 1958:

Reason unknown was given as the cause for 50 failures, or 2.3% of the total, where reasons for the failure could not be clearly ascertained.

Disaster, including such factors as floods, strikes, and the fraudulent action by employees, was responsible for only 12 failures, or 0.5%. Even some of these failures might logically be attributed to management error, because proper insurance could have prevented them.

Fraud on the part of principals in the business caused 34 failures, or 1.6%. This included 1% attributed to irregular disposal of assets, 0.3% charged to false financial statements, and another 0.3% resulting from other fraudulent acts.

Neglect accounted for a somewhat larger, but still small, percentage of the failures, with 62 failures or 2.9% stemming from this source. The apparent cause of neglect in most cases (1.5%) was poor health. Bad habits caused the neglect in 0.8% of the instances. Marital difficulties were responsible for another 0.3% of failures resulting from neglect.

Bad management, however, appeared to be the reason for an overwhelming 92.7%, or more than nine out of ten, of all these failures.

Breaking this figure down by more specific causes showed that incompetence resulted in 38.8% of the management failures. Another 23% resulted from unbalanced experience on the part of the principals. Lack of managerial experience accounted for 21.1%, while lack of experience in the line of products handled was held responsible for 9.8%.

This category was further analyzed by surface causes, or the reasons given as excuses for failure.

More than one-third (38.7%) of these manage-

ment failures were attributed to inadequate sales (poor sales management).

Another 27.7% of the failures blamed tough competition (poor general management) for their difficulties.

Some 2.3% claimed that inventory burden (poor general management) forced them out of business.

Another 5.7% said their hands were tied by excessive fixed assets (again poor general management).

17.6% charged that they failed because they couldn't collect the money owed them (poor credit management).

10.5% blamed their failure on heavy operating costs (poor financial management).

A few, 0.4% said their trouble was poor location (another evidence of poor general management).

Because some failures are attributed to a combination of apparent causes, the figures in this analysis add up to somewhat more than the 92.7% of all business failures attributed to bad management.

What do all these figures mean? They indicate pretty conclusively that it is the businessman's own ability which counts most in determining whether his firm will succeed or fail, regardless of the economic climate.

In the refrigeration and air-conditioning field—whether at the dealer, distributor, contractor, or service level—there is always room for the businessman who knows what he is doing and how to do it. While his business may be specialized in its own way, Dun & Bradstreet experts point out, the operator of any such firm also needs to know as much as possible about the mechanics of running his business.

Knowledge of financial operations, credit, sales, and general management, and an ability to properly control these factors, are as important to a one-man operation as to a business that employs hundreds. Service and quality may make the initial profits, but it takes sound management policies and practices to hold onto these profits and to build the business.

***Bad management could cause you to close your doors**

The statistics in the above article speak for themselves. There's no doubt that many more dealer-contractors in this field will fail during 1959. Will you be one of them?

If there's the slightest question in your mind, give yourself this quickie quiz:

Have you analyzed your business so that you know where it's going and how it's going to get there? Have you organized it for most effective operation?

Do you make the most of accounting as a business tool? Do you properly control expenses and job costs?

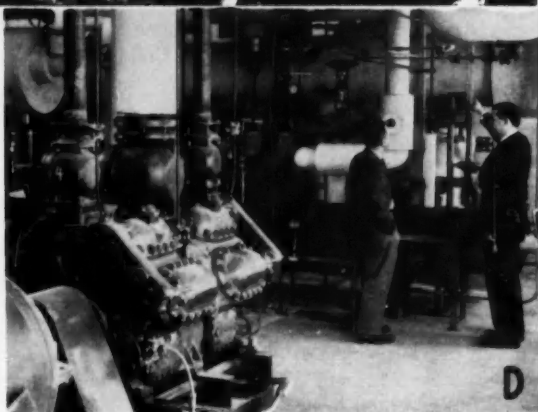
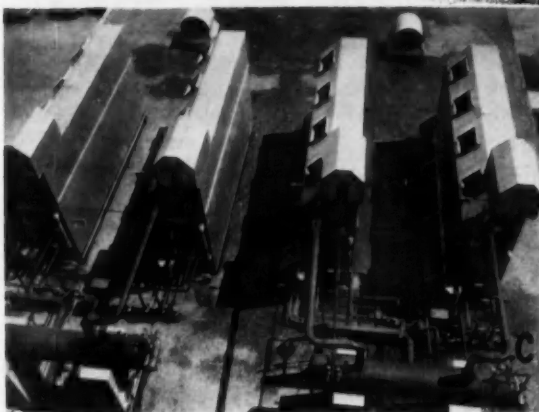
Do you have an adequate sales force with effective sales management? Is your advertising getting results?

Do you know how and where to get the cash you need to keep your business financially sound?

Do you have a planned program of employee relations that makes each person on your payroll a real booster of your business?

Are you fully prepared to intelligently establish your company's budget for the coming year?

If you can't honestly answer yes to all these questions, then you do need help on business management — the kind of help George Webster can give you. Reprints of his entire "You're the Boss" series are now available. For details see page 37 of this issue.



PRECISE TEMPERATURE is indicated in a given area in the Amherst Engineering Laboratory by simply pressing a button on the supervisory data center and control panel (A) of the heat pump system. Penthouse (B) on roof of laboratory contains the

fans for the air distribution system. All four evaporative condensers-outside air coolers (C) are atop the engine room (D) which houses the air source heat pump system. George Briley, York branch manager, points out cooler-heater. At left is V/W compressor.

AIR DOES DOUBLE DUTY as heating-cooling source

INDUSTRIAL HEATING and cooling took a big step forward recently with the installation of a compound compression air source heat pump at the Amherst Engineering Laboratory of Sylvania Electric Products Co., Buffalo, N. Y. It is thought to be the northernmost building ever to be heated by an air source heat pump requiring no additional heating system.

Developed by York Corp., subsidiary of Borg-Warner, the system uses no common fuels except electricity which operates the units. Heat is extracted from the outside air, even in zero weather. Refrigeration compression raises this heat to a usable temperature. This heat then is used to make hot water which is circulated to air-conditioning units throughout the building.

The building will be heated in the winter by the same refrigeration equipment that cools it in the summer. The laboratory is 2½ stories high with an area of 85,000 sq.ft.

An engine room adjacent to the main building houses the heat pump system. Its capacity is 250 tons of cooling in the summer and 2,400,000 Btu/h for heating.

The system consists of twin R-22 systems, each made

up of one 125-hp high-stage 16-cylinder 1170 rpm compressor and one 75-hp low-stage 16-cylinder 1750 rpm compressor. Also included are two air cooler-condensers and one 22" x 12' water-cooler-heater. A 20-hp pump circulates hot or cold water to the air-conditioning units.

There are 96 fan-coil units around the perimeter. The interior areas are air-conditioned by a zoned low-pressure air system through various types of ceiling diffusers.

Special areas are conditioned with a local recirculation system. Return air in these units is mixed with conditioned air to regulate temperature in a given area with a load varying from zero to 100%.

The air units (two in each system) on the roof of the engine room act as air coolers in winter and evaporative condensers in summer. The single water cooler-heater in each system automatically switches from cooling in summer to heating in winter.

Hub of the entire system is a Minneapolis-Honeywell data center and control system. This system actuates pneumatic valves to switch from heating to cooling or vice versa.

Continued on page 70



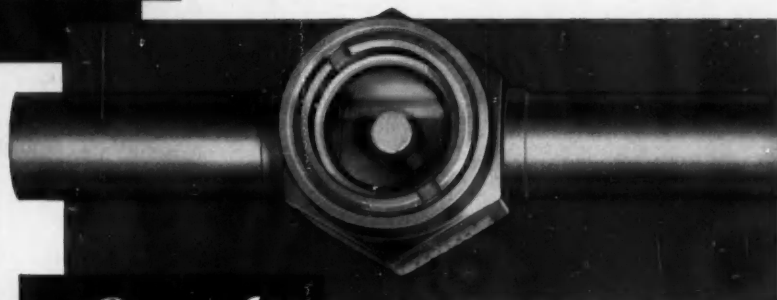
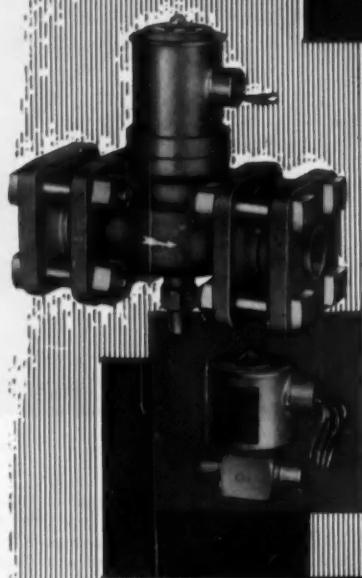
No Matter
what the Size...

Sporlan gives ANY
Air Conditioning Installation
PEAK PERFORMANCE

Right Down the Line!



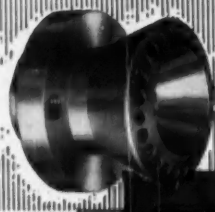
Systems from $\frac{3}{4}$ to 100 tons are kept perfectly dry with the famous **Sporlan Catch-All** filter-driers.



THE *See-All*

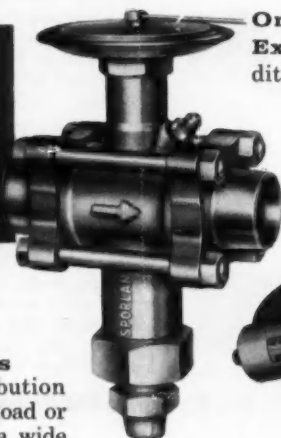
The amazing new **Sporlan See-All** shows you at a glance the degree of dryness and the amount of refrigerant the system is carrying.

Sporlan Solenoid Valves with the Power Packed Blue Seal Coil defy burn-outs.

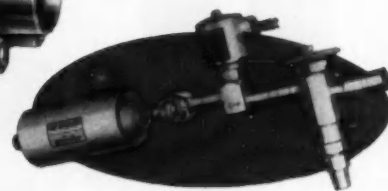


Sporlan Refrigerant Distributors

give uniform distribution for any number of circuits regardless of load or evaporator temperatures. They permit a wide range of coil applications... thanks to the Sporlan interchangeable nozzle!



Only **Sporlan Thermostatic Expansion Valves** for air conditioning offer the Flow Master element, which minimizes valve hunting... smooths out evaporator performance regardless of size.

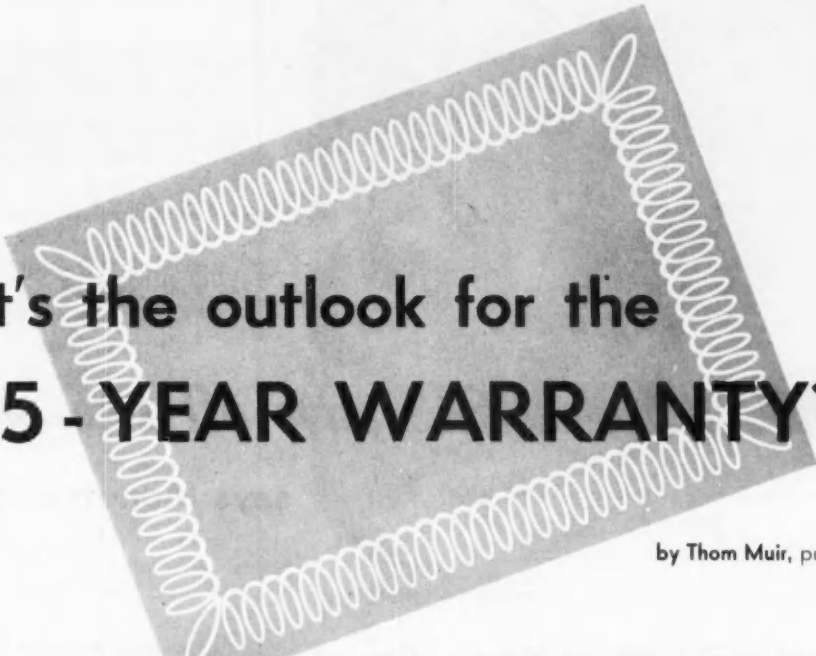


Buy Sporlan *Right Down the Line* from your wholesaler for your next air conditioning installation, and no matter what the size of the job, *Peak Performance Right Down the Line* will be yours!

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CONVENTION HALL... PHILADELPHIA, PA.
Circle No. 29 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING



what's the outlook for the 5-YEAR WARRANTY?

by Thom Muir, publishing director

IS THE 5-YEAR WARRANTY here to stay? Apparently not, at least in its present form. Stimulated by the challenging question raised in the September issue of REFRIGERATION & AIR-CONDITIONING BUSINESS — "Is the 5-year Warranty Good for You?" — dealers, contractors, distributors, and manufacturers throughout the country have been spurred into appropriate action.

We have been advised that several manufacturers are taking steps to determine the feeling of their customers on this matter.

General Electric surveyed its distributors at their national meeting in Florida for reactions pro or con on the warranty subject.

Westinghouse is questioning its dealers and distributors by mail.

Worthington also is canvassing its distributors to determine their attitude toward a possible change in the firm's warranty program.

Typhoon is analyzing this problem and attempting to learn the views of its distributor-dealer organization.

Industry associations, too, are focusing attention on this topic.

George Howe, chairman of the trade relations and business standards committee of Refrigeration & Air Conditioning Contractors Association, has advised us that in discussions at this group's national convention not one contractor defended this warranty.

At the Air-Conditioning and Refrigeration Wholesalers convention in San Francisco, many members took a stand in opposition to the 5-year warranty and have voiced this opinion to their suppliers.

The letters that continue to come into BUSINESS from dealer-contractors, wholesalers, and manufacturers indicate that there is a move on to eliminate, or at least to modify, this warranty.

In fact, some manufacturers already have taken steps to eliminate the labor allowance or restrict the warranty coverage on certain component parts.

Despite this widespread sentiment, however, there are some people in the industry who are not convinced that the 5-year warranty should go.

For example, the president of one manufacturer of heating and air-conditioning equipment expresses the opinion that many manufacturers are receptive to the idea of eliminating the 5-year warranty only because of their failure to properly design and test their product before making it available for sale.

Such product failures, he points out, have cost these manufacturers a small fortune. The protection afforded to the customer by the 5-year warranty has forced these manufacturers to continue to pay for their mistakes. He feels that by eliminating the warranty the industry would be walking out on its obligations to the end users of its equipment.

Let's look at this opinion more closely.

First of all, any manufacturer worth his salt can not and will not ignore his responsibility for the product he produces. If a design or production fault is there, it generally appears in the first year of operation. But even if it were not to appear until two or three years later, it logically would appear in a majority of units of that design or production run.

Such a mass failure certainly would indicate to the manufacturer that perhaps a design or production fault existed. Consequently, to protect his name and business relations with his customers, the responsible manufacturer would make arrangements for correction, or some form of relief, if investigation revealed the fault to be his.

Remember, as it stands today the 5-year warranty is designed to protect the customer only against proven manufacturing defects — and not against all equipment failures, regardless of cause.

I cannot believe that any reputable manufacturer wishes to walk out on his obligations as to manufac-

Continued on page 73



"RENTING ICE MAKERS pays off two ways"

says Monette Bowman

"WE MAKE TWO KINDS of profit by renting automatic ice makers," says Monette Bowman, president of Shreve Distributing Co., Shreveport, La.

"In the first place," he explains, "the rental charges bring us a steady year-round income. And in the second place, ice machine rentals frequently lead to sales of this equipment."

The company's rental program is divided into three phases: straight rental of new machines, rental of new units with an option to buy written into the agreement, and rental of used ice makers. In each case the rental fee includes all service and maintenance.

"A good example of the straight rental deal," Bowman explains, "is the case of one local firm which operates five drug stores, each with a soda fountain and lunch counter. We have a rented ice maker in each one of these establishments."

"Renting these machines solves one tax problem for this corporation. If they bought the machines, the firm's management could only charge off a percentage of the cost each year over a period of years. By renting the units, the corporation can charge the full rental fee directly to operating expenses."

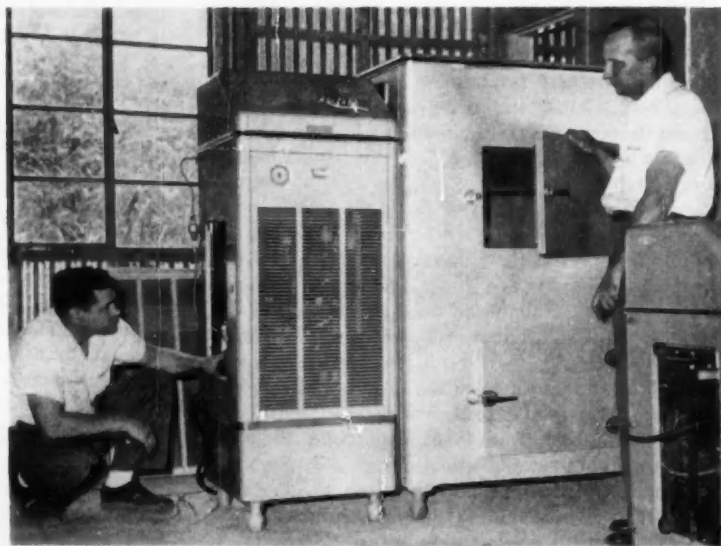
"The absence of maintenance

costs has been another important factor in helping us place rental ice makers in chain stores such as these," Bowman points out.

"Small businesses, such as the little independent restaurants, also are good prospects for this rental business," Bowman maintains. They don't have the tax worries of the larger corporation, but quite often there is a lack of ready cash.

"The owners of these businesses know the advantages of ice machines, but don't always have the money for a down payment. In such cases we deliver and install the machine, sign the customer up on a one year contract, and collect one month's rent in advance."

"If the customer should decide to buy the machine, after renting it for six months, the money paid in



MACHINES ARE CHECKED thoroughly before being placed for rental, for the rental fees cover all service and maintenance. An option to buy is included in the agreement.

rent is used as the down payment. A machine which costs \$795, for instance, requires a down payment of \$150 and 24 monthly payments of \$31. We rent the machine for \$33.50 per month.

"In six months the customer has paid \$201 in rent. Using this as the down payment, the monthly payments are cut to \$28, which is less than the rental fee.

"Renting or buying, we make money either way."

Used Machines Rebuilt

Each used ice maker is rebuilt and refinished before it is installed. Bowman rents these used machines for about \$27 a month. The rental on these machines also includes all service and maintenance.

"This is the most profitable deal of all for us," Bowman says, "because we take the used machines as trade-ins, and we haven't as much money invested in them as in a new machine. We'll sell these machines too, but nothing is mentioned about that in the rental agreement. Each case has to be handled individually.

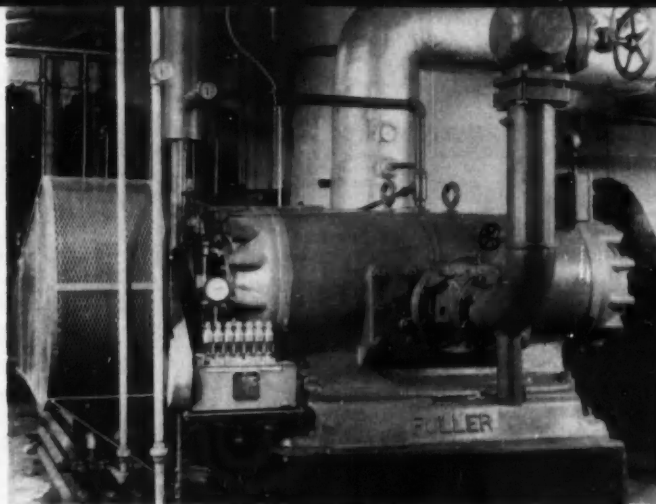
"It's not difficult to interest a quantity user of ice in a rental deal. The average cost of bulk ice in this area is \$1 a hundred. If a business uses 200 lbs. a day, its ice costs come to \$60 a month. That makes the firm a good prospect for a machine that will make clean ice right on the premises for as little as 9 cents a hundred."

Advertising Supplies Leads

Shreve Distributing uses newspaper advertising and display listings in the telephone yellow pages to get sales leads. A product brochure and business reply card supplied by the factory and sent to selected mailing lists has produced the greatest number of inquiries, however.

What does all this add up to in terms of increased business?

"Our goal," Bowman concludes, "is to develop a clientele of rental customers large enough so that the income from this activity will carry our company's overhead expenses through the year."



100 TONS OF REFRIGERATION supplied by this rotary booster compressor supplements the 110-ton unit on the first stage of a two stage system. This installation enabled Liebmann Packing Co. to double capacity without adding a new circuit.

Booster compressor provides

Reserve Capacity When Needed

PROBLEM: Raise the capacity of an existing refrigeration system without adding additional circuits.

SOLUTION: Connect a 100-ton rotary booster compressor to the first stage of the existing circuit.

Two years ago Liebmann Packing Co., Green Bay, Wis., added a third quick-freezing room to handle meat products processed from over 900 cattle and 2500 calves daily. The following summer, during peak production, a shortage of refrigeration capacity became evident as freezing times were prolonged, and it became difficult to maintain optimum low temperatures.

Refrigeration was supplied by a two-stage ammonia system consisting of 110 tons on low stage and 530 tons on high stage. Ton-nages were produced by reciprocating compressors operating on a standard refrigeration cycle.

Refrigerant piped directly and expanded in evaporating coils maintained temperatures in the quick-freezing rooms at -30 F. In cold storage rooms, ammonia-chilled brine was circulated through closely-spaced piping on room walls. These rooms were kept at -10 F.

When the new quick-freezing room was added, the increased volume of suction gas from the coils was too great a load for the 110-ton compressor on low stage. The new 100-ton Fuller compressor connected to the first stage of the circuit occupies less than 10 x 12'. And foundation costs were about 25% less than estimated.

The only piping changes required were to extend existing suction lines from the original low stage compressor, and pipe the discharge to the main intercooler. Besides the usual refrigerant suction trap, the company installed a temperature and pressure cut-off control. This provides double protection against high discharge pressures and extreme low temperatures. It is entirely automatic and is controlled by the discharge gas temperature.

The system can be operated with the rotary booster in or out of the line. If extra capacity is desired the unit can be cut into the low stage and capacity is almost doubled.

RANCO IMPROVED "O" SERIES CONTROLS



Higher Electrical Capacity

Service men, take note. Ranco "O" Series commercial refrigeration and air conditioning controls have a stepped-up, approved electrical rating—now 16 amps. full load, 96 amps. locked rotor with 115 volts a.c. and 10 amps. full load, 60 amps. locked rotor with 230 volts a.c.

You'll notice a restyled cover, too. Cover and mounting brackets are now finished in a durable, wrinkled black paint. Type and code numbers are stamped on top and back of control frame for sure identification in case nameplate is detached. Increased electrical ratings are listed on insulator board inside cover. New nameplates do not carry type and code numbers or ratings.

Ranco "O" Series Controls are now better than ever in performance, easier than ever to identify.

"O" Series Controls for every installation

010-1401 (shown) is a low-pressure control opening on drop in pressure. Other standard "O" Controls are low pressure, high pressure, dual pressure, dual temperature models with variations according to fixed and adjustable differentials, operation on rise or drop in temperature or pressure, with or without manual reset, cut-out and cut-in ranges, capillary tubes. Gives you replacement controls for general applications in commercial air conditioning and refrigeration installations and special applications in ice cube machines, milk coolers, signal circuits, wide-cycle defrost, and others.



Ranco
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Service Men! Get this book! — Ranco Book No. 1660 lists "O" Series, and nearly 5,000 other Ranco replacement control applications. See your Ranco wholesaler for a copy (not available from factory).

Circle No. 30 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

Tips on Installing Steam and Hot Water Unit Heaters

IMPROPER APPLICATION of steam and hot water unit heaters can cause persistent operating difficulties with the system in which they are installed.

To help minimize such troubles, the Air Moving and Conditioning Association, Inc. offers some practical pointers on the installation of this type of equipment. Here are some potential trouble spots, and what you can do to avoid them:

Branches from steam supply main—The branch connecting the unit heater to the steam supply main should be pitched down from the heater and be taken off from the top of the main.

Do not drip the main through the heater, since entrained condensate will reduce its capacity. The return connection must be pitched down from the unit so the condensate will drain freely.

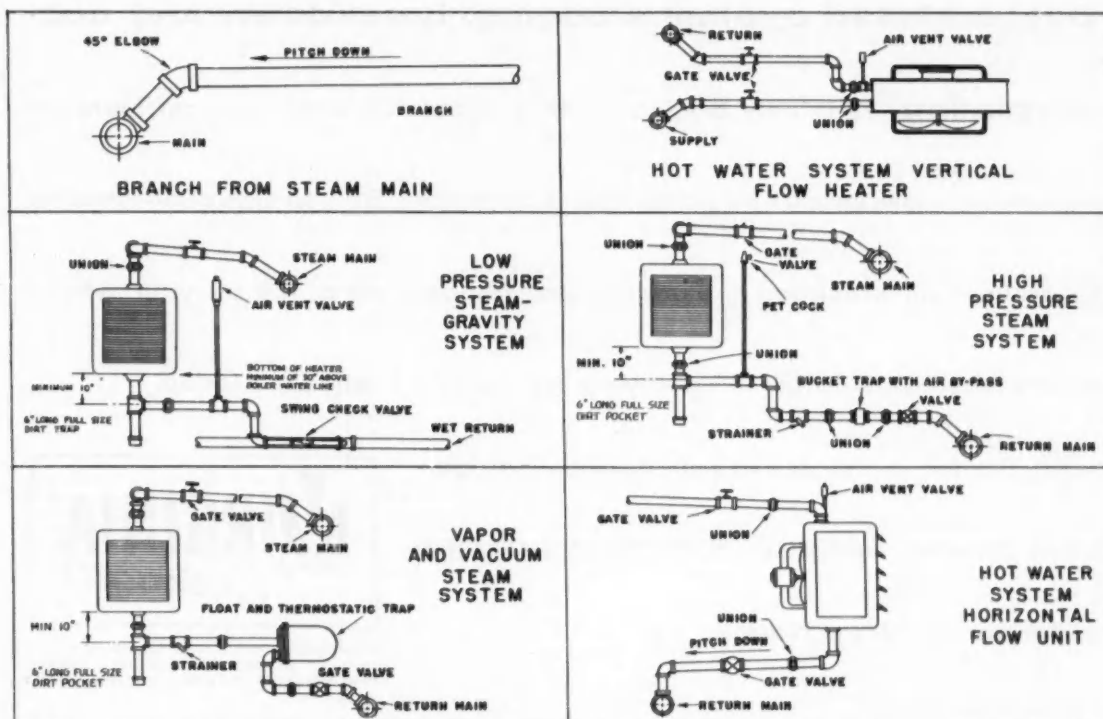
Low pressure gravity systems—Float traps and check valves will not operate without a head of water above them. If they are not placed well below the bottom of the heater, condensate will back up into the heating element. This will cause trouble, and a drop in capacity.

Place the trap or check valve 10" below the bottom of the heater and extend a dirt trap 6" below

this. Do not bush the heater, but run full size to the strainer. Make sure that there is an adequate air vent valve installed in closed-return systems.

Vacuum systems—The precautions listed above apply equally to vacuum systems except that vent valves are omitted. If thermostatic instead of float and thermostatic traps are used, a cooling leg must be provided ahead of the trap.

High Pressure Systems—Install the bucket or high pressure float trap at least 10" below the bottom of the unit, together with
Continued on page 68





NO MORE COPPERPLATING WORRIES



NO WAXING, EVEN AT ULTRA-LOW TEMPERATURES



MUCH GREATER STABILITY



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SUNISO OIL

Dual-inhibited against sludging, breakdown and copperplating. With new Suniso G Oil, you can lubricate your refrigeration equipment more safely and surely than ever before. Suniso G is dual-inhibited to prevent oil breakdown, sludging and copperplating. It's on your wholesaler's shelves. Ask for it—end your lubrication headaches today.



Suniso is distributed nationally by Refrigeration Division, VIRGINIA SMELTING CO., 285 Jefferson St., West Norfolk, Va.



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CAN-O-GAS • PERMAGUM • PRESSTITE TAPE • KWIKWRAP
SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS

APPLICATIONS *Manual*

by Hugo C. Smith

Watch Your Bids — They Can Make or Break You

ONE LITTLE MISTAKE in figuring a bid can prove mighty costly to a refrigeration or air-conditioning contractor. Something as simple as skipping over one of the many paragraphs in the specifications, adding a column of figures incorrectly, or putting a decimal point in the wrong place, can put the contractor behind the 8-ball financially, if the error makes his

bid substantially lower than it should be and this bid is accepted.

At best such an error will tie up a contractor's organization on a profitless job. At worst it may force him into bankruptcy.

It is possible for anyone to make a mistake. Many mistakes can be eliminated, however, if proper estimating procedures are followed. Such procedures involve

a series of checks and cross-checks designed to catch any errors that may have been made in the original calculations.

When it comes to estimating a job, the refrigeration or air-conditioning contractor can learn a lot from the general contractor.

Estimates prepared by general contractors often contain as many as several thousand items. The only way that large detailed estimates can be taken off specifications of this size with any assurance of accuracy is by the paragraph method. This means matching your estimate with the job specifications paragraph by paragraph, and numbering each paragraph accordingly.

When you receive the plans and specifications for any large job, here is the step-by-step procedure we recommend in preparing your bid:

1. Read the specifications thoroughly from beginning to end.
2. Check off all work to be done by sub-trades, and immediately notify these trades to start preparing their bids.
3. Check with your suppliers of major equipment to be sure they are working on the job.
4. Write all out-of-town suppliers requesting them to forward prices as soon as possible. If this is done promptly, it will minimize the expense of telegrams and long distance telephone calls later.
5. Start preparing a paragraph-by-paragraph estimate as shown on the job estimate form reproduced with this article.
6. Cross-check your estimate figures as shown in the bid summary.

Continued on next page

SHEET NO. <u>3</u>		JOB ESTIMATE		PROP. NO. <u>1188</u>			
ESTIMATED BY <u>H. ADAMS</u>		ORIGINAL DATE <u>NOV. 4-58</u>		REVISED DATE <u>NOV. 10-58</u>			
CHECKED BY <u>V. SCOTT</u>		APPROVED BY <u>H.S.</u>		(M.C.S.)			
ASSIGNED TO <u>BILL SWEENEY</u>		NAME OF JOB <u>GENERAL HOSPITAL</u>					
PARA. NO. AND LETTER	QUANTITY	PART NO. AND ITEM	ITEM COST	TOTAL COST	LABOR HOURS	SUB-CONTRACT	SERVICE RESERVE
91		SERVICE VALVES (INCL WITH COMP.)	✓				
92		LIQUID INDICATORS					
—	1	3/8" " "	✓ 4.05	4.05	1		
—	1	5/8" " "	✓ 4.50	4.50	1		
92-2	8	3/8" " "	✓ 5.90	47.20	4		
—	5	1/4" " "	✓ 6.75	33.75	3		
92-6	1	5/8" " "	✓ 4.40	4.40	1		
—	1	5/8" " "	✓ 4.40	4.40	1		
93		DEHYDRATORS (ANGLE FLANGE TYPE)					
—	5	1 3/8" DRYER	✓ 62.00	310.00	5		
—	2	5/8" " "	✓ 37.50	75.00	2		
93-4	1	5/8" " "	✓ 37.50	37.50	1		
—	6	3/8" " "	✓ 12.00	72.00	6		
94		OIL SEPARATORS					
5.75	5	#7075 - 7 1/2 H.P.	✓ 40.00	200.00	20		
1.18	1	#1014 - 3 H.P.	✓ 28.00	28.00	4		
3.68	4	#1101 - 1 1/2 H.P.	✓ 30.00	120.00	16		
4.02	5	#976 - 1 H.P.	✓ 27.00	135.00	20		
1.18	1	#1014 - 3 H.P.	✓ 28.00	28.00	4		
95	20	RUNNING TIME INDICATORS (G.E. Co)	✓			268.00	
96	20	COMPRESSOR BASES (CONCRETE)	✓			540.00	
97	20.00	7.5 O.W.F. CONDENSING UNITS	✓	180.00	360.00	240	900.00
SUB-TOTALS			✓	512.00	4585.00	369	808.00
369 HRS X \$4.10 PER HR = \$1512.90			✓		1512.90		

Complete! Compact!

only \$41.00

PREST-O-LITE

TRADE-MARK

**Refrigeration
& Air-Conditioning
Outfit**

Includes torch handle, leak detector stem, 3 torch stems, regulator (for B or MC tank), 12½ ft. hose assembly, suction hose, and enameled steel carrying case.



Give your customers prompt, fast and complete service with this LINDE leak detecting, soldering, heating, and brazing outfit.

● **SENSITIVE LEAK DETECTOR**

Shows up as little as 100 parts per million of halide refrigerant gas in air—locates leaks too tiny to find with soapy water.

● **PRECISION CONTROL**

Acetylene regulator automatically maintains selected delivery pressure—calibrated screw for pressure adjustment.

● **JOB-MATCHED OPEN FLAMES**

Fine, light, and medium torch stems—instantly interchangeable—for refrigeration and air-conditioning jobs.

● **EASY TO USE**

Detector is simple and positive—soldering and heating torch concentrates flame where needed—everything in one compact case!

Available from your local supplier of LINDE products. For his name and address, write: LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.

Linde
TRADE-MARK

**UNION
CARBIDE**

"Linde," "Prest-O-Lite," and "Union Carbide" are trade-marks of Union Carbide Corporation.

Circle No. 32 on Reader Service Card

APPLICATIONS MANUAL

Continued from preceding page

BID SUMMARY-GENERAL HOSPITAL

	COST	MARK-UP	BID
MATERIAL	8,800	2,000	10,800
LABOR	1,100	275	1,375
SUB CONTRACT	2,400	240	2,640
FREIGHT	180	—	180
TOTALS	12,480	2,515	14,995
MARK-UP TOTAL	2,515		
= BID TOTAL	14,995		\$14,995

7. Check the bid from beginning to end.

8. Check bidding instructions.

9. Mail the bid.

When we start work on a bid, we provide ourselves with a notebook in which we record all prices and other pertinent information instead of putting it on scratch paper. All figuring for the job also is done in this notebook. The notebook is never thrown away but remains with the job estimate. In this way we keep all information on each job together so that we can put our hands on it anytime we need it.

The paragraph method of preparing a bid, as illustrated in the accompanying job estimate form, is practically self explanatory, but there are some things we'd like to point out.

We find it is better to have someone in the accounting department make the extensions from item cost to total cost for us, as people trained in this work are less prone to error.

In preparing an estimate by the paragraph method, certain items sometimes appear more than once. For instance, item 96 on the sample job estimate sheet picks up the concrete compressor bases for the entire job, but these bases may be mentioned again later on for some of the individual systems. When this happens we do not indicate a cost, but merely make a

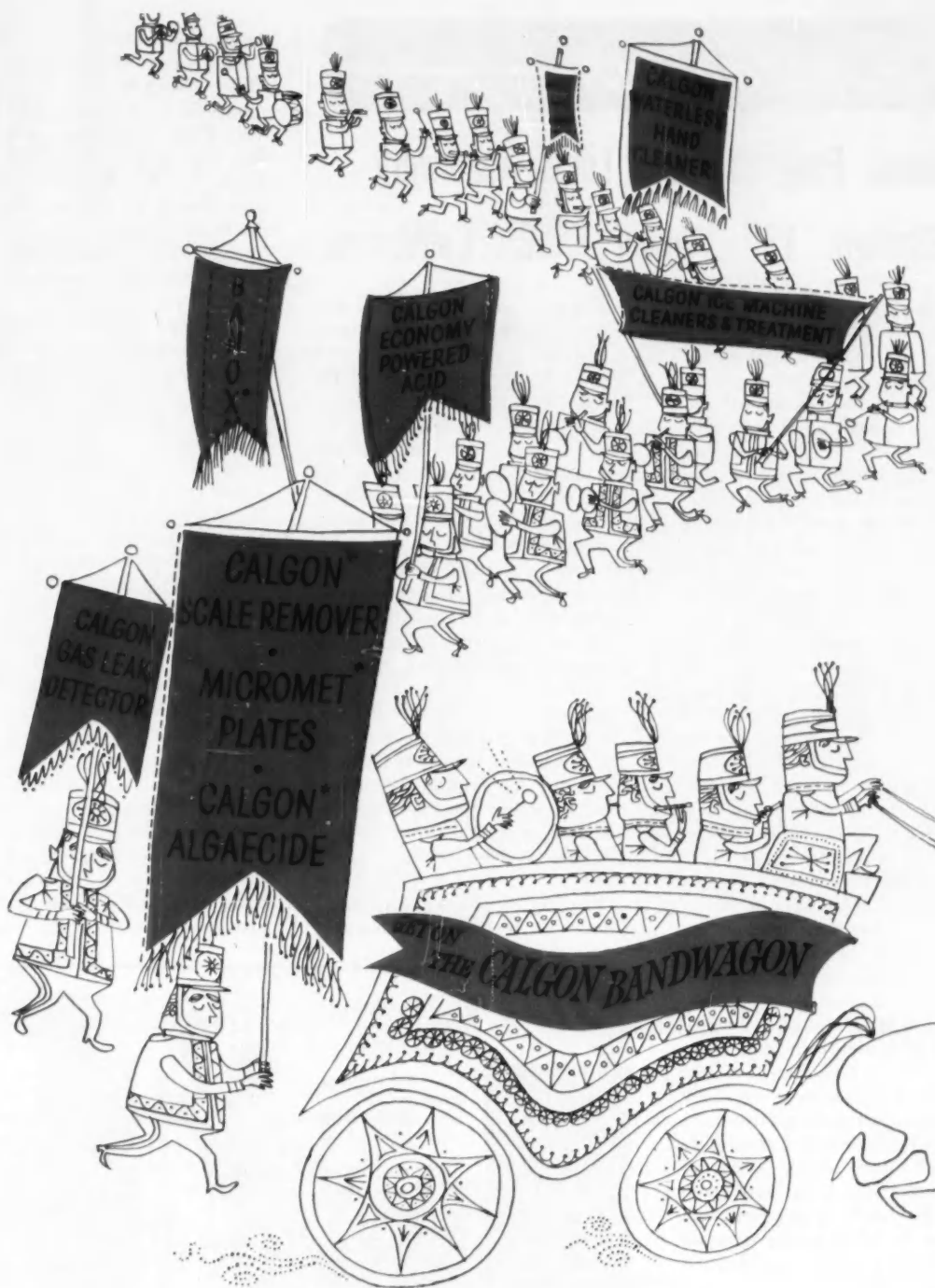
notation reading "See paragraph 96."

Often estimators will come across items on bids for which it is impossible to determine any definite cost. An experienced estimator, however, will always put down some figure for any item that may result in a cost when the job is being installed.

The estimator should insist that all material quotations from suppliers be tied down to the specifications by specific paragraph numbers. For example, a quote should read, "Our price for material as specified in Section 380, paragraphs 10-18, of the General Hospital specifications is as follows:".

After the job estimate has been completed, it should be checked by some person other than the original estimator. A column is provided on the estimate sheet in which the checker can check off each item as he okays it. The checker should make sure that every paragraph number in the specifications is shown on the estimate sheet. He also should make sure that indicated quantities are accurate and that extensions have been properly made.

A final cross-check on arithmetic is provided by the bid summary. You will note that in this summary the cost, mark-up and bid price columns are totaled individually. Then the mark-up total is added to the cost to provide a double-check on the bid total.



Every year more and more users join the Calgon* parade

CALGON COMPANY



DIVISION OF **HAGAN** CHEMICALS & CONTROLS, INC.
HAGAN BUILDING, PITTSBURGH 30, PENNSYLVANIA
DIVISIONS: CALGON COMPANY, HALL LABORATORIES
IN CANADA: HAGAN CORPORATION (CANADA) LIMITED, TORONTO

*T.M. Reg. U. S. Pat. Off.

Circle No. 33 on Reader Service Card

Contractors

National Programs and Local Teamwork

Highlight 13th Annual RACCA Convention

BY PLEDGING TO JOIN in the exchange of problem-solving techniques and ideas, Refrigeration & Air Conditioning Contractors Association, at its 13th annual convention, stepped up its programs in the fields of labor relations, manufacturers' policies, and codes of ethics.

Addressing the convention, Charles L. Walling, president, cited trade relation activities with Air-Conditioning Refrigeration Institute as one of RACCA's most significant activities of the past year.

George T. Howe, chairman, trade relations committee, reported that these activities included investigation of an education program designed to eliminate the 5-year warranty on compressors; an effort to stop contractors from selling labor only; better field installation practices that would cut down the number of sealed hermetic units returned under warranty; and contractor help for the manufacturer in setting up production quotas.

How RACCA can be of assistance to manufacturers, and to the benefit of the industry was the subject of a talk given by John Gilbreath, representing Air-Conditioning Refrigeration Institute. He outlined a three point program for contractors which included forecasting types of equipment that will be in demand; use of good installation practices; and demand for certification of ratings.

United Association's assistant general president, John J. McCartin outlined provisions in the UA constitution for a refrigeration fitters' division in its pipefitting branch, and a program for training apprentices in the refrigeration field. McCartin made it clear however that UA has no intention of setting up a separate branch for the refrigeration and air-condition-

ing trades, or of shortening the 5-year pipefitter apprentice training program.

John M. Rhoades, president, National Association of Plumbing Contractors, told delegates that the joint industry program committee on labor matters, plans to issue a report on recommended hiring practices which will be in compliance with NLRB decisions. The committee has recently completed a series of meetings at which this subject was discussed.

Horace E. Wetzell, president, Mechanical Contractors Association of America compared the problems of RACCA and MCAA stating that only the scope of operations differ, but methods and problems are similar. He asked that the groups become better acquainted in an effort to achieve a solution to these common problems.

At the election of officers, Charles L. Walling, National Re-

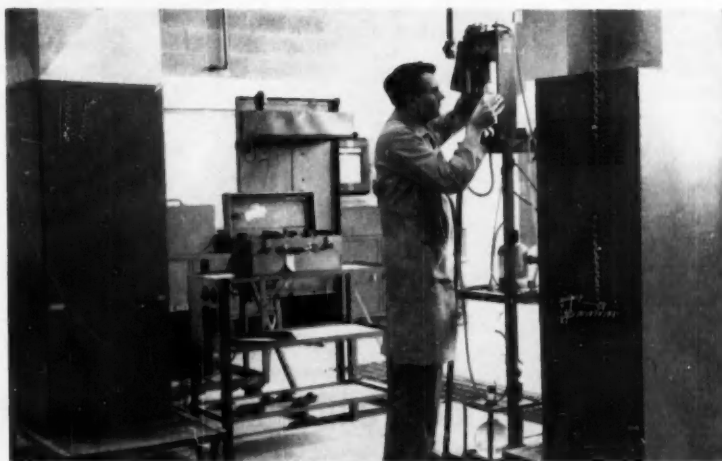
frigeration Sales, Los Angeles, Calif., was re-elected president. Other officers include: T. C. Alexander, T. C. Alexander Co., Denver, Colo., first vice president; Don Kissell, Kissell Refrigeration Corp., Los Angeles, Calif., second vice president; Harvey Hottel, Harvey Hottel, Inc., Silver Spring, Md., treasurer; and Robert Lafferty, Hill-York Corp., Miami, Fla., secretary.

Directors of RACCA include: Erwin Geiger, Geiger Refrigeration & Air Conditioning Corp., Irvington, N. J.; Walter McCarty, McCarty Bros. Equipment Corp., River Forest, Ill.; Lee Quinn, L. J. Quinn Co., Cincinnati, Ohio; Frank Le Grande, Allentown, Pa.; W. F. Peine, Indiana Weather-makers, Indianapolis, Ind.; and Harvey O. Miller, Murphy & Miller, Inc., Chicago, Ill.

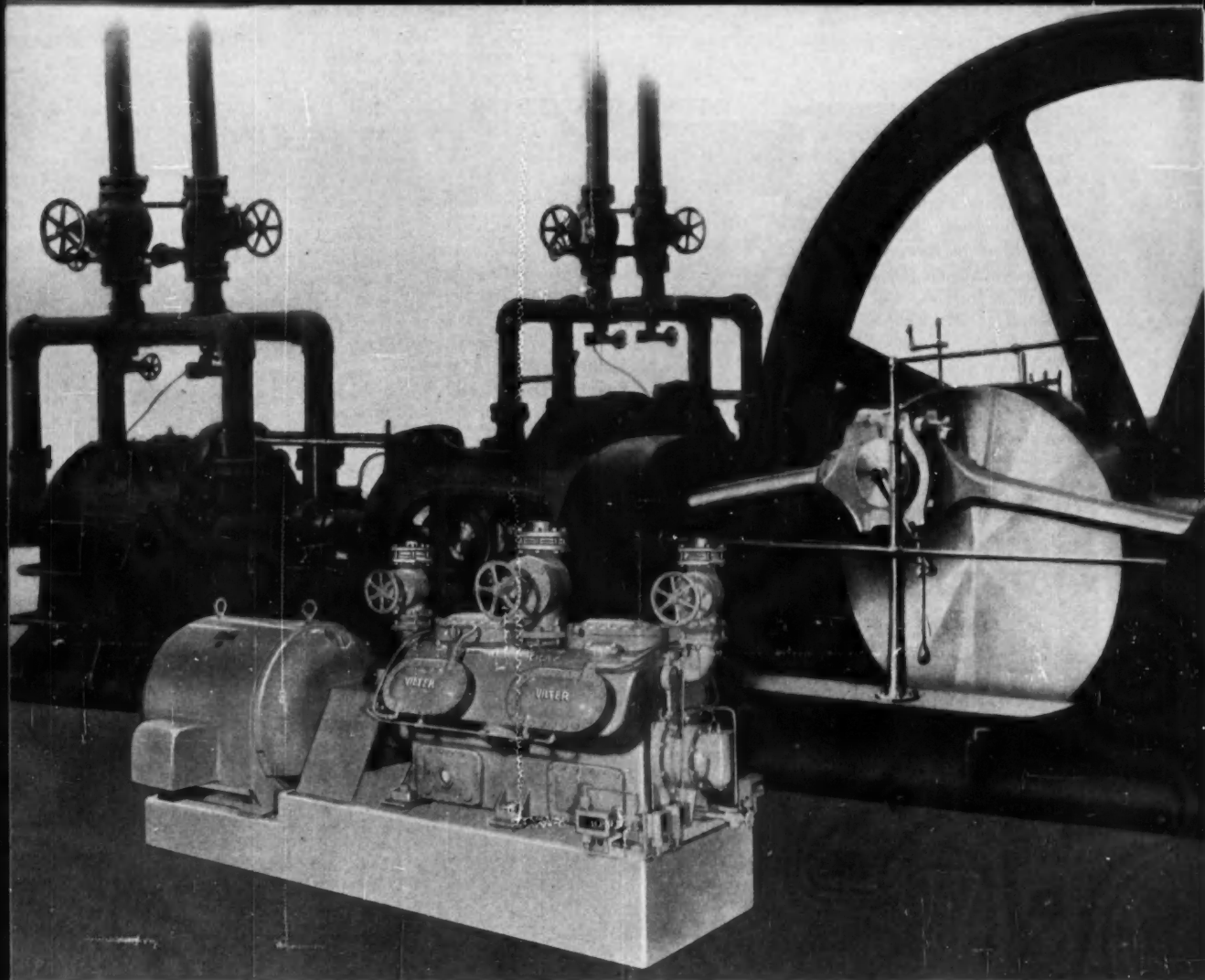
Henry Ely, executive secretary, RACCA of Southern California, was appointed western representative; and Howard Kearns of Washington, D. C. was named managing director.

CHICAGO RACCA BEGINS THIRD SERVICE SCHOOL

RACCA of Chicago has begun its third annual training school for servicemen. All students are employed by members of the Chicago



A GAUNTLET OF TESTS ranging from 1500 hour salt spray exposure to complete air flow resistance ratings checks the efficiency of Trane Climate Changer residential year-round air-conditioning equipment. Here, a gas-fired heating unit undergoes a rigid combustion efficiency test at the company's House of Weather Magic research center. This move marks Trane entry into residential air-conditioning. The units will be built at a new \$1.5 million plant in Clarksville, Tenn. The new line includes five gas-fired heating units and matched cooling components.



Vilter Keeping Pace with Modernization! specifies **Texaco Capella Oil Waxfree**

Today's Vilter VMC Compressors incorporate 91 years of manufacturing know-how. To assure continued first-rate performance, The Vilter Manufacturing Company has set up rigid standards for its compressor oils—standards which are met by Texaco Capella Oil Waxfree.

Vilter chose Texaco Capella Oils Waxfree because of their outstanding performance. Even at temperatures as low as minus 100°F., for instance, waxout does not occur in systems where a miscible-in-oil refrigerant is used. Texaco compressor lubricants have excellent non-foaming characteristics, resist oxidation, and are completely stable with all refrigerants.

There is a complete line of Texaco Capella Oils Waxfree to meet all compressor requirements. They are carefully packed to exclude all moisture, and are available in 5- and 55-gallon drums. The most popular grades are also

available in 1-quart containers. For assistance in selecting the right grade for your operation, call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write:

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



LUBRICATION IS A MAJOR FACTOR IN COST CONTROL

(PARTS, INVENTORY, PRODUCTION, DOWNTIME, MAINTENANCE)

Circle No. 34 on Reader Service Card

group. Employers are furnished quarterly reports on grades, attendance, ability, aptitude, and attitude.

Elementary, intermediate, and advanced classes have been designed to train men, over a five-year period, in all phases of commercial, industrial, and domestic refrigeration, as well as air-conditioning and heating.

Full shop facilities are provided in classrooms rented from Greer Shop Training, Inc., Chicago. The school is directed by Ion Caloger.

INFORMATION CENTER TO OFFER BID DATA

A construction exchange center to provide services for the construction industry is now being built in Los Angeles, Calif. The center will provide a plan room, bid depository, information not now available on bidding (particularly with reference to subcontractors) and many other services.

Original incorporators of the center are Frank Park, Western Air and Refrigeration; Don Kissell, Kissell Refrigeration Corp.;

Jack Carney, Commercial Refrigeration; and Pete Askew, Thermal Products.

NEMA GIVES POSITION ON TAX RULE CHANGE

Under a proposed ruling, Internal Revenue Service would make all self-contained air-conditioning units subject to the 10% manufacturers excise tax, instead of only those under 1 hp as presently taxed.

The proposal, submitted by the room air-conditioner section, National Electrical Manufacturers Association, also asked that IRS adopt a newly developed industry definition for self-contained air-conditioning units.

At a meeting between representatives of IRS and the NEMA excise tax committee, members stated that the revised ruling should include language that will clearly limit the tax to what are known in the industry as room air-conditioners.

IRS is giving consideration to the requests and has asked NEMA for clarification of its position, that self-contained air-conditioning units designed specifically for heating and cooling through reversal of refrigerant or air flow should be exempt from the application of the tax. NEMA also asks that self-contained units sold for future delivery under builders' contracts made prior to the effective date of the definition be exempt.

No indication was given as to the date when a decision on the revised ruling will be reached or when it will become effective.

CALIF. RSES DISCUSSES ON-THE-JOB PROBLEMS

On-the-job problems of refrigeration servicemen will be discussed at the California Association of Refrigeration Service Engineers Society educational workshop in San Luis Obispo Jan. 23 and 24.

National service managers from leading firms will speak.

CORNELL- DUBILIER Motor Capacitors



**for Dependable
Motor Service**

Don't risk your reputation on motor capacitors of questionable quality. Remember — only the *right* capacitor will assure maximum torque.

For over 25 years C-D motor starting and running capacitors have been "preferred" by motor manufacturers and repairmen

alike. And, there's a C-D type for every known motor application ... available for immediate delivery from your local C-D Distributor. You can select the type you need for any job from Catalog XTR-MOT. Write for your free copy to Cornell-Dubilier Elec. Corp., South Plainfield, N. J.



CORNELL-DUBILIER CAPACITORS

Old Hands at Dependability

Circle No. 35 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

REFRIGERATION & AIR-CONDITIONING

SAVED!

by **KRAMER**

THERMOBANK COMPRESSOR

your money! Kramer's THERMOBANK COMPRESSOR costs less — even less than most so-called "cheap" defrost systems. Many extra components are installed in this package unit, including compressor starter switch, evaporator motor switch, strainer, drier, high and low pressure switches, control box, magnetic starters, sight glass, purge valve, suction vibration eliminator and all service valves.

your time! Time saved is money saved. Factory assembled and run-in, THERMOBANK COMPRESSOR is ready to operate. It requires simplest connections between evaporator and compressor package, saving costly installation time. Start-up, control adjustments, and servicing are much easier. Expensive call-backs are eliminated.

your space! Uniquely designed, THERMOBANK COMPRESSOR is the only system where the high-side can be installed outdoors; it works in any location in the United States at any time of the year.



THERMOBANK COMPRESSOR FOR OUTDOOR USE

WRITE FOR BULLETIN TC-406

KRAMER TRENTON CO. Trenton 5, N. J.

45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Circle No. 36 on Reader Service Card



Announcing: new Armstrong S-E Armalite

a self-extinguishing, foamed plastic insulation for cold rooms



Armstrong S-E Armalite is a completely new cold room insulation that furnishes extra protection against fire hazards. It fully meets ASTM Test D-635-56-T requirements for self-extinguishing plastics. This superior type material is made from tiny, foamed plastic beads infused with a special chemical to make them fire retardant. The beads are then expanded and molded with heat and pressure into strong, resilient boards.

The closed cell structure of S-E Armalite is unusually efficient, with a low k-factor of

0.24 at 60° F. mean temperature. During installation, resilient S-E Armalite "gives" under pressure to assure heat-tight joints. Excellent stability at low temperatures keeps joints in service. Other advantages include light weight, high strength, good moisture resistance . . . all at low cost.

These are just the highlights. For full details on this remarkable new cold room insulation, send today for free folder. Write Armstrong Cork Company, 2112 Rumford Avenue, Lancaster, Pennsylvania.

Armstrong INSULATIONS

Circle No. 37 on Reader Service Card

REFRIGERATION & AIR-CONDITIONING

USEFUL *Literature*

SPECIFIC APPLICATIONS of ice machines are described in a Brochure SCB-8 published by Scotsman Queen Products, Inc. Tells advantages of using ice machines in bars, restaurants, coffee shops, hospitals, motels, and package stores. Illustrates three models of ice machines with capacities from 110 to 500 lbs. daily.

Circle No. 86 on Reader Service Card

THERMODYNAMIC PROPERTIES of refrigerants are given in three booklets published by General Chemical Div., Allied Chemical Corp. Each booklet covers a separate refrigerant. Included in the three are: Genetron 11 (trichloromonofluoromethane), Genetron 12 (dichlorodifluoromethane), and Genetron 22 (monochlorodifluoromethane).

Circle No. 87 on Reader Service Card

PROFITS FOR ALL with "Brownie" soft ice cream freezers and shake servers is the theme of new literature from Brown Mfg. Co. Installations are shown and ratings given for each model.

Circle No. 88 on Reader Service Card

NEW EDITION of automatic controls Catalog No. 26 by Barber-Colman Co. comprises 52 pages. Described and illustrated are electric thermostats, pressure controls, humidistats, motor-operated valves, temperature regulators, motor operators, unit ventilator controls, hot water controls, electronic controls, control centers, and accessories. Operational and application data is included with the description of each control component.

Circle No. 89 on Reader Service Card

PIPE INSULATION is the subject of an eight-page folder from L. O. F. Glass Fibers Co. Described is the lightweight glass fiber "Micro-Lok" pipe insulation for temperatures from sub-freezing to 350 F. Advantages of spring-hinge opening and closing are pointed out.

Circle No. 90 on Reader Service Card

NEW LINES OF HEAT EXCHANGERS are introduced in two bulletins from Yates-American Machine Co. Bulletin HT-20 gives dimensions, materials, and engineering data on its new steam-fixed bundle models. Bulletin HT-21 describes the company's new stainless steel fixed bundle units.

Circle No. 91 on Reader Service Card

LEAK DETECTOR CHARACTERISTICS AND APPLICATIONS are presented in a booklet released by General Electric Co. Describes locating leaks in any system or component under pressure or vacuum. Contains technical data on four types of detectors and information on accessory equipment.

Circle No. 92 on Reader Service Card

CAPACITIES AND SPECIFICATIONS for air cooled, water-cooled, and air-water cooled condensing units are given in a brochure issued by Lehigh Mfg. Co. Photographs show construction of various units in each category.

Circle No. 93 on Reader Service Card

AIR COOLED PACKAGE CHILLERS and remote condensing unit assemblies are featured in Bulletin 8027A by Dunham-Bush, Inc. Describes application of package chillers on residential, commercial and industrial chilled water applications. Includes use of remote condensing units with remote dry expansion coils. Gives capacity, component, and dimensional data plus specifications and wiring schematics.

Circle No. 94 on Reader Service Card

(More Useful Literature on page 58)

ROOM BY ROOM D-H FAN-COIL "SPOTAIRE"

FILTER UNITS FOR NEW OR

DRAYER

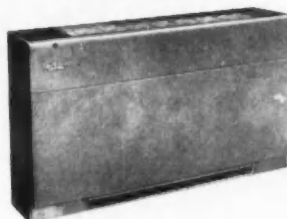
OLD CONSTRUCTION ARE

HANSON

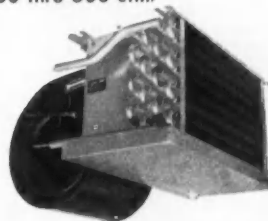
TRULY QUIET BEYOND BELIEF!



LRC's... basic unit, concealed or deluxe cabinet
(200 thru 600 cfm)



VRC's... concealed or deluxe consoles
(200 thru 600 cfm)



HRC's... three suspended types (300 thru 1750 cfm)



NEED LITERATURE?

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DIVISION NATIONAL U. S. RADIATOR CORP.

3301 MEDFORD STREET
LOS ANGELES 63, CALIFORNIA
CABLE: CLICONI LOS ANGELES

Circle No. 38 on Reader Service Card

Nor-Lake, Inc. Dept. 201
2nd & Elm, Hudson, Wis. (Phone: Hudson 523)

Please rush FREE illustrated literature on:

"Reach-In" Refrigerator ☐ Upright Freezer ☐

NAME _____

ADDRESS _____

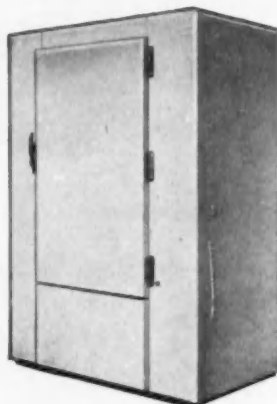
CITY _____ STATE _____

NOW, NOR-LAKE PRESENTS

New "Reach-In" Refrigerator and Upright Freezer. Free details on these sensational models

REACH-IN REFRIGERATOR

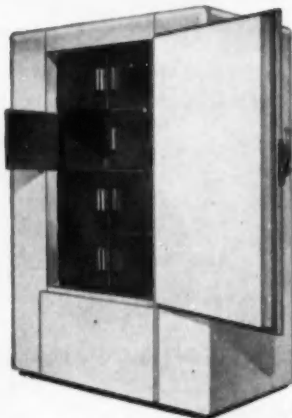
Thick Fiberglas insulation, embossed aluminum interior, heavy-gauge steel exterior and special moisture evaporator that eliminates need for drain connection and makes for economy and long life. Convenient! Maintains constant temperature—needs no adjusting. Stainless steel shelves are moveable. Glass or solid doors. Sizes range from 18 to 28 cu. ft.



UPRIGHT FREEZER

Fast freezing and economic storing. High density Fiberglas insulation and rustproof, high-conducting copper coils in each shelf mean faster, more uniform freezing. Heater strips around the door prevent sweating. Heavy-gauge steel construction and aluminum liner and shelves for long life. Big capacity—full 27 cu. ft. model shown. Models down to 17 cu. ft. available.

All models available in stainless steel.



For better freezing, cooling or storing, look to the nation's northland and—

NOR-LAKE, Incorporated
Hudson, Wisconsin

Circle No. 39 on Reader Service Card

USEFUL LITERATURE

Continued from page 57

DATA SHEET describing various products of Simpson Electric Co. now is available. Specifications and operating features are given for the test equipment including "Therm-O-Meter" models, temperature meter, and a.c.-d.c. volt-ohm milliammeter. The literature is designated Form No. 4001.

Circle No. 95 on Reader Service Card

PIPING AND CONTROL DIAGRAMS for defrosting of ammonia systems are given in a catalog (81E8b) released by Recold Corp. Covers defrosting of systems using expansion valve type coils with recirculator, flooded type coils with recirculator, flooded coils with gravity accumulator, and thermostatic expansion valve fed from high-pressure receiver.

Circle No. 96 on Reader Service Card

AIR COOLED CONDENSERS are described in a 3-page engineering leaflet released by Drayer-Hanson Div. of National-U.S. Radiator Corp. Provides information helpful in the selection and application of various sizes of condensers. Also lists complete specifications including performance data.

Circle No. 97 on Reader Service Card

VIBRATION ELIMINATORS are described in Bulletin VE312 published by American Metal Hose Div., American Brass Co. Includes features and standard size specifications. Cutaway view shows principles of construction.

Circle No. 98 on Reader Service Card

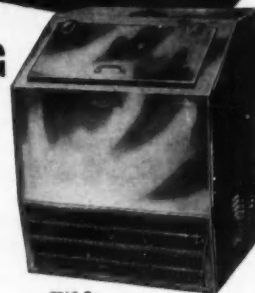
CORRECT SELECTION of Series TMD square and rectangular air diffusers for any application is possible with 20-page catalog by Titus Mfg. Corp. Installation data and performance tables are included in two-color piece.

Circle No. 99 on Reader Service Card

Years Ahead in Design

WITH
"KING SIZE" SAVING
TODAY . . .
THE LA CROSSE

SENIOR
**KUBE
KING**



3844 Sr.



3843 Jr.

Top La Crosse quality in design, economical operation and big Kube capacity! SAVE . . . from purchase price through years and years of convenient service with the Senior Kube King.

- Approx. 3200 crystal clean Kubes (no holes) per 24 hours. • 110 lbs. storage • 6 qts. water per freezing cycle • Automatic production start and stop • No pumps • No float valves • Compact—less than 6 sq. ft. of floor space—fits under bar.

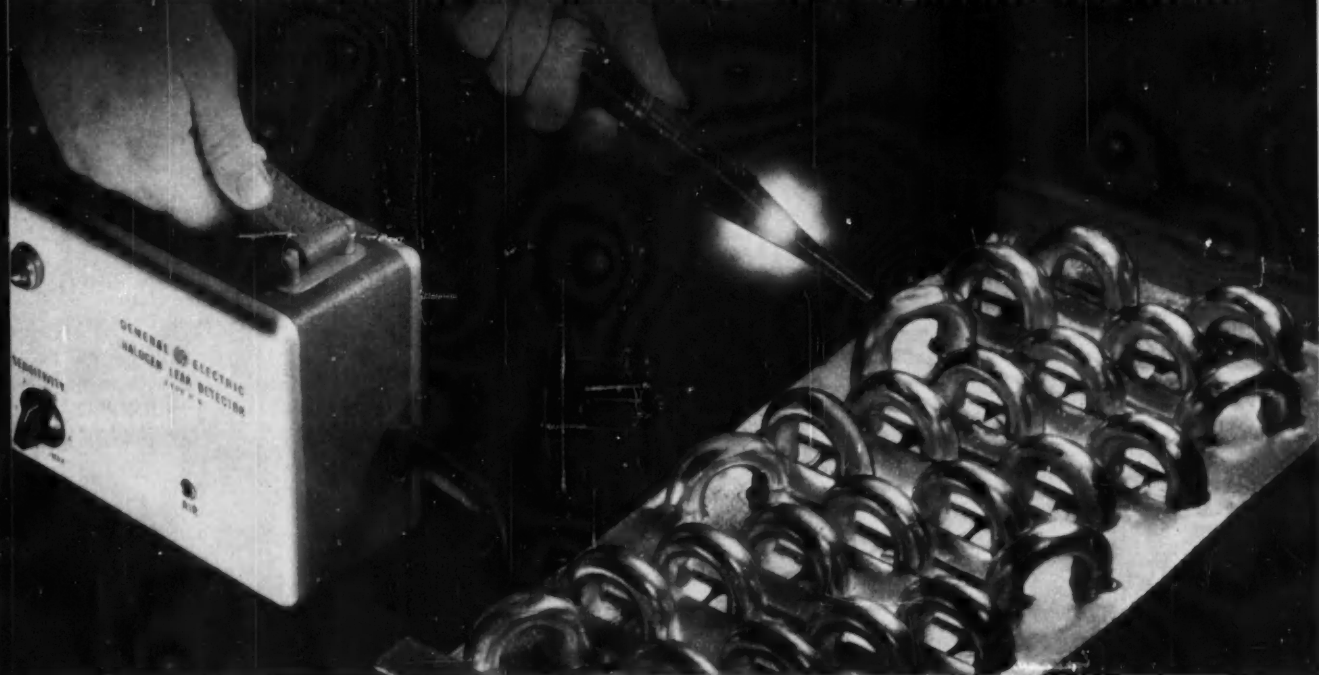
LA CROSSE COOLER COMPANY

3002 LOSSY BOULEVARD SOUTH, LA CROSSE, WISCONSIN



Circle No. 40 on Reader Service Card

NEW leak detector for air conditioning and refrigeration servicemen



GENERAL ELECTRIC H-6 LEAK DETECTOR

Locates Leaks in a flash!

Now General Electric offers a new, low-cost, electronic leak detector that is sensitive, easy to use, and permits positive location of leaks in systems that contain Refrigerant gases such as Freon, Genetron, and Isotron. Designated the Type H-6, this leak detector utilizes a unique probe that actually lights up the moment it passes near a leak.

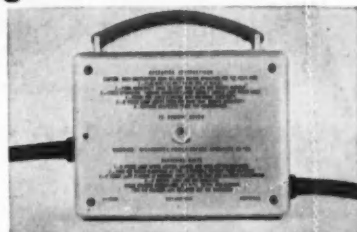
Designed especially for air conditioning and refrigeration servicemen, the portable H-6 is lightweight and features a wide range of sensitivity selection through the use of a single control dial. In addition, an automatic balance feature helps in locating leaks even when room air is contaminated with Refrigerants.

The easy-to-use H-6 leak detector is ready for operation 60 seconds

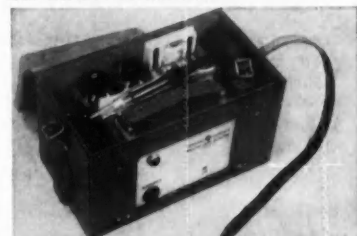
after it is turned on. To test for leaks, you simply move the probe along seams or around joints. When the tip passes near a leak, the probe flashes. After locating a leak, the detector recovers in less than two seconds.

The faster, more reliable leak detection afforded by the H-6 can easily mean more service calls per day, greater customer satisfaction, and greater profits to you.

See and operate the new H-6 leak detector now on display at leading refrigeration supply houses throughout the country. You can also get more information by contacting your G-E Apparatus Sales Office or by writing for bulletin GEA-6827. General Electric Co., Section 585-78, Schenectady, N. Y.



Operating instructions plus helpful servicing hints are imprinted on the back of the leak detector control unit.



Attractive leather case is available and provides a convenient means of carrying equipment and accessories. The detector unit can remain in the case, even when in use.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

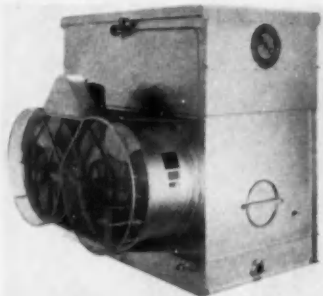
Circle No. 41 on Reader Service Card

Cooling Towers

Product: "Flexi-Tower" line of cooling towers.

Manufacturer: Baltimore Air-coil Co., Inc., Baltimore, Md.

Features: Standard equipment includes pressure gauge for calibration of spray pressure and resultant capacities. Line covers a capacity



range of 10 to 215 tons. Factory-assembled, counterflow design, blow-through propeller-fan. No mechanical changes take place to effect capacity changes. Capacity can be increased by increasing pump size. All parts corrosion resistant.

Circle No. 120 on Reader Service Card

Dairy Merchandiser

Product: Self-service dairy and delicatessen merchandiser (Models 5412, 5408).

Manufacturer: Sherer-Gillet Co., Marshall, Mich.

Features: Available with or without superstructures. Has two re-



frigerated shelves. Superstructures can be either shelf or mirrored types. Model 5412 has full cabinet length of 12', with ends adding 3" each. Model 5408 cabinet is 8' long.

Circle No. 121 on Reader Service Card

Oil Pump

Product: Oil pump refrigeration tool.

Manufacturer: Riley Refrigeration Tool Co., Long Beach, Calif.

Features: 1-1/8" dia. barrel will enter conventional oil container eliminating suction tube and the possibility of pumping air into the compressor. Discharge connection can be furnished with either 3/8" or

1/4" male flare fitting. Will pump 130 lb. pressure six strokes per pint of oil. Can be used to add oil without drawing vacuum on crankcase, or to add oil to compressor crankcase after it has been pumped down and oil filter plug removed.

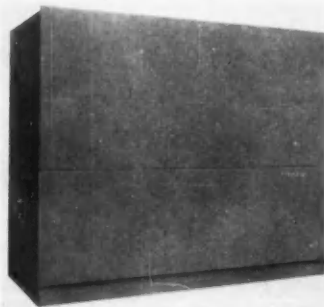
Circle No. 122 on Reader Service Card

Air-conditioners

Product: Large capacity self-contained water-cooled air-conditioning units.

Manufacturer: Typhoon Air Conditioning Co., Div. of Hupp Corp., Brooklyn, N. Y.

Features: Available in capacities of 15, 30, 45, 60, and 75 ton. They incorporate two, three, four, and five 15-hp hermetic compressors respectively. Large compressors offer full capacity and reserve power capacity.



Operate on city water or cooling tower without change of circuits. Factory assembled and wired for ease of installation. Steam heating coils available with all models. Btu ratings from 364,000 to 728,000.

Circle No. 123 on Reader Service Card

Truck Body

Product: Utility truck bodies for Jeep chassis.

Manufacturer: Reading Body Works Inc., Reading, Pa.

Features: Includes adjustable or permanently installed shelves in all compartments as well as adjustable and removable shelf and tray dividers. Double-panel doors keep 14" deep compartments watertight. Rust-resistant stainless steel hinge



pins. A 90" body is designed for Jeep chassis FC 150, and a 108" model for chassis FC 170. Optional equipment includes sliding steel top, removable ladder rack, pipe vise rack, pipe rack and deluxe safety-step bumper.

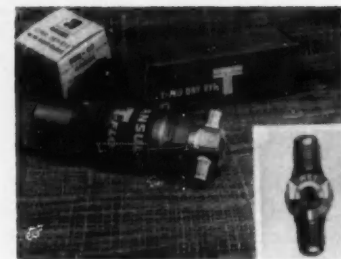
Circle No. 124 on Reader Service Card

Moisture Indicator

Product: "Super Dry-Eye" moisture indicator and sight glass.

Manufacturer: Ansul Chemical Co., Marinette, Wis.

Features: Exclusive pad and filter protects indicating elements from constant flow of refrigerant to pro-



vide longer life. Moisture indicating elements have been re-located across the bottom third of the sight glass to retain full view sight glass area. Both elements, one for Freon-12 and the other for Freon-22, have rapid color changing properties.

Circle No. 125 on Reader Service Card

Flexible Connector

Product: "Flex-Hose" flexible metal connector (Type F).

Manufacturer: Korfund Co., Inc., Long Island City, N.Y.

Features: Eliminates transmissions of vibration and pulsation. Will withstand continuous operating



temperatures up to 400 F, and working pressures up to 150 psi. Available in 10 sizes to accommodate fittings from 1/4 to 2-1/8" OD. Standard lengths range from 2 1/2 to 32". Other lengths and diameters available on request.

Circle No. 126 on Reader Service Card

Tapping Valves

Product: Line of tube piercing and tapping valves.

Manufacturer: Henry Valve Co., Melrose Park, Ill.

Features: Complete line includes line tap, line port, can tap and control valves for refrigeration and air-conditioning. Line tap and port valves provide permanent capped port for charging, discharging and testing. Line port valves are primarily for sealed systems. Con-

Where high
humidity is needed . . .

THE

LARKIN

BAFFLE COOLER COIL

Is ideal for Walk-In Coolers, Florist Boxes,
Produce Boxes, Packing Rooms, Etc.



In refrigerators where a high humidity is necessary, it will pay you to install the Larkin Baffle Cooler Coil. By handling a large volume of air and cooling it slightly each time it passes through the coil, it is possible to maintain a higher humidity. Louvers are engineered to provide correct circulation of air and accelerate its flow. Air constantly swirls around stored products, providing proper refrigeration and humidity.

The Larkin Baffle Cooler Coil is durably constructed and is a complete unit. It consists of an aluminum cross-fin coil, double louvered baffle with drain pan, and hangers.

See your wholesaler or write for Bulletin 1057



LARKIN COILS INC.

519 MEMORIAL DRIVE, S.E., ATLANTA, GEORGIA

OUTSTANDING FEATURES

- Patented Larkin Cross-Fin coil with aluminum fins and staggered copper tubes mechanically expanded (aluminum tubes available for ammonia refrigerant)
- Baffles are constructed of heavy-gauge, polished aluminum
- Adjustable baffles easily removed for inspection and cleaning
- Coil and baffle hangers are heavy-gauge die-stamped aluminum channel punched with keyslots for easy attachment
- Matched baffles for left and right sides furnished if specified
- Special-sized baffle cooler coils are also available

Circle No. 42 on Reader Service Card

trol valves, both angle and two-way types, can be used with all Henry auxiliary valves. Control valves can be removed without the loss of refrigerant charge. Can tap valves screw directly onto refrigerant con-



tainers and pierce the seal to release refrigerant. Two-way control valve permits connection to a gauge and charging line in series to any number of refrigerant containers. Circle No. 127 on Reader Service Card

Display Case

Product: "Colshelf" rear-loading refrigerated display case.

Manufacturer: Weber Showcase & Fixture Co., Inc., Los Angeles, Calif.

Features: Eliminates customer lineups for fast-moving items. Stor-



age in the cooler box, to the rear of the display area, eliminates moving packaged food from one area to another. All replacement of displays is done from the rear. Display section has 4-deck area. Eliminates blocking aisles.

Circle No. 128 on Reader Service Card

Fiberglass Ducts

Product: Prescored "Fiberglas" insulation boards ready for folding into ducts.

Manufacturer: Owens-Corning Fiberglas Corp., Toledo, Ohio.

Features: Deadens undesirable noise and permits high velocity of heating and cooling air. Aluminum foil bonded to exterior of ducts



serves as a vapor barrier and as an exterior finish. Manufactured in rectangular and round sizes. Low heat transfer coefficient keeps air at nearly constant temperature while flowing through ducts. Can be installed with a minimum of tools.

Circle No. 129 on Reader Service Card

Winter Air-conditioner

Product: Horizontal, oil-fired, winter air-conditioner (Comet 581-84 Series) which is factory-assembled.

Manufacturer: Thatcher Furnace Co., Garwood, N. J.

Features: Combustion chamber made of lightweight, unbreakable refractory fibers designed to absorb sound and insure low heat conductivity. Cold air return has built-in filter rack. Filter can be removed



easily from front access door. Three eye hangers permit installation overhead. Two adjustable air bands provide easy control of air-oil mixture for top combustion performance. Measures 66½" long; 23" wide; and 25" high. Output at bonnet of 84,000 Btu. Input of 105,000 Btu. Circle No. 130 on Reader Service Card

Filter-Drier

Product: "TMC" filter-drier for use on systems up to ¾ ton capacity.

Manufacturer: Tube Manifold Corp., North Tonawanda, N.Y.

Features: Body measures only



15½" dia., 13½" long. Available with sweat or SAE flared fittings. Design and construction similar to larger size TMC filter-driers.

Circle No. 131 on Reader Service Card

Sheet Metal Saw

Product: Band machine for cutting sheet metal (Model 30M).

Manufacturer: Doall Co., Des Plaines, Ill.

Features: Saw band can be turned 90° for cut-off machine for work of any length. Has built-in blade-shear and welder. Speed range

from 50 to 5200 fpm to permit friction sawing of light steel sheets.



Built in job-selector selects best speed for any job. Available with 30 or 16" throat.

Circle No. 132 on Reader Service Card

Welding-Cutting Kit

Product: Complete gas welding and cutting kit (Purox W-200).

Manufacturer: Linde Co., Div. of Union Carbide Corp., New York, New York.

Features: Includes welding head, cutting attachment and noz-



zle, two regulators, hose, goggles, and friction lighter. Packed in enameled steel carrying case. Welds metal up to ½" thick, cuts up to 2". Also includes 17-book library which covers working with specific processes and metals.

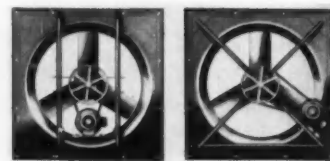
Circle No. 133 on Reader Service Card

Industrial Fans

Product: Industrial and commercial fans (Model IC).

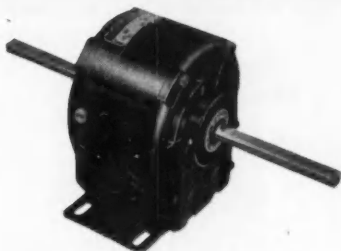
Manufacturer: American Blower Div., American-Standard, Detroit, Mich.

Features: Available in 42 different low pressure models with certified ratings up to 75,330 cfm at zero static pressure or 71,740 cfm

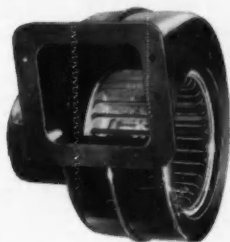


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Authorized *Redmond* Distributorships
Available in Selected Markets!



air conditioning replacement motor



for applications through 325 cfm



condenser fan motor



"all in one" replacement kit

Redmond offers you both a complete line of fhp electric motors, blowers, kits, and accessories, and the name that is known nationally as "The BIG Name in Small Motors."

As a Redmond Distributor you profit because of the products available to you, and you increase your sales because Redmond gives you without charge the most complete line of sales and merchandising aids available, backed up with a complete advertising program. It will pay you to take a minute to find out if the Redmond Distributorship in your area is still available. Just fill in the coupon below.

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&
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imprint space



Franchise circulation ads

National trade, technical,
and consumer advertising



Redmond

DISTRIBUTORS DIVISION
Redmond Company, Inc., Owosso, Michigan

I'm interested in obtaining a Redmond Distributorship.

Is one in my area still available?

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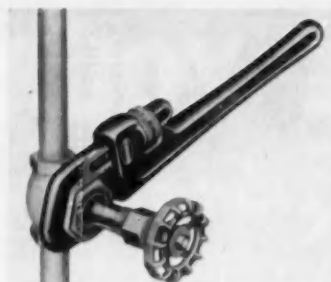
CITY _____ ZONE _____ STATE _____

at 1/8" wg static pressure. High pressure fans available in 50 models with ratings up to 31,100 cfm at zero pressure or 44,800 cfm at 1" wg static pressure.
Circle No. 134 on Reader Service Card

Hex Wrench

Product: Hex wrench.
Manufacturer: Ridge Tool Co., Elyria, Ohio.

Features: Angular jaw design provides more leverage. Available in three sizes, for 3/8 to 3/4", 5/8 to 1 1/4", and 1 to 2" nuts. I-beam handle, constructed of malleable alloy, has



hang-up hole. Adjustable four-sided jaw gives positive grip.

Circle No. 135 on Reader Service Card

Here is your gauge ...

...for permanent installation on REFRIGERANT-12 and REFRIGERANT-22 systems...

Today's gauge for today's job on those R-12 and -22 systems. Highly accurate and built down to the last detail to stay accurate.

The corresponding temperature scales are in color. Note the wide ranges of sizes and readings in R-12 and R-22 types.

Here is the gauge for permanent installation on refrigeration systems ... with the Marsh "Recalibrator" to keep it permanently accurate. Write for facts or **See Your Jobber**

MARSH INSTRUMENT CO. Sales Affiliate of Jas. P. Marsh Corporation
Dept. P, Skokie, Ill. • Marsh Instrument & Valve Co. (Canada) Ltd., 9407
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MARSH Refrigeration Instruments

GAUGES • WATER REGULATING VALVES • SOLENOID VALVES • HEATING SPECIALTIES

Circle No. 44 on Reader Service Card

Wide Range of Sizes and Pressures

- Dial sizes: 2 1/2", 3 1/2" and 4 1/2" for Refrigerant-12 and -22.
- Dial size, 2 1/2" only for gauges with both Refrigerant-12 and -22 scales.
- Dial range for pressure gauges: 0-300 lbs. and 0-400 lbs. For compound gauges, 30" x 150 lbs., 30" x 300 lbs., 30" x 400 lbs.
- All gauges have "Recalibrator." All except 3 1/2" and 4 1/2" gauges standard with 1/4" male bottom connection and restriction screw in socket. 3 1/2" and 4 1/2" gauge have 1/4" N.P.T. connection.

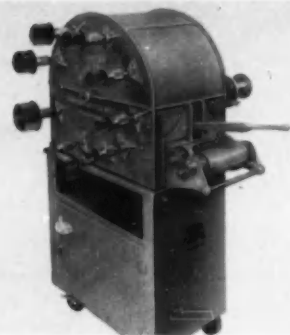
SEE OUR EXHIBIT 14th International Heating & Air Conditioning Exposition
PHILADELPHIA Jan. 26-29, 1959

Copper Cleaning Unit

Product: "Clean-O-Matic on-the-job power unit for cleaning, cutting, and reaming copper tubes and fittings.

Manufacturer: Stockmeister and Prins, Wellston, Ohio.

Features: Automatic five step copper preparation includes cleaning the fitting; cutting the tube; removing burr edge from tube; reaming the tube; and cleaning the tube. Readies copper for soldering. Power driven steel wire brushes clean copper fittings from 1/2 to 4". Brushes oscillate at proper speeds for cleaning, are held in place by chucks.



Scoring is eliminated. Tube cutter, burr remover, reamer, and cleaner mechanisms are all part of automatic operation. Weighs 160 lbs., rides on rubber casters, fits through standard door opening. Foot brake locks machine in position. Steel storage cabinet provides space for tools. Equipped with lock door. Gears and bearing journals are self-lubricating. Stands 51" high, 24" wide, 32" long.
Circle No. 136 on Reader Service Card

Refrigerator Line

Product: Line of refrigerators and freezers.

Manufacturer: Utility Refrigerator Co., Los Angeles, Calif.

Features: Choice of baked white enamel or stainless steel exterior and aluminum or stainless steel interior. Complete line includes over 96 different models ranging from 15 to 95 cu.ft., reach-in or pass-thru, remote or self-contained.

Circle No. 137 on Reader Service Card

Service Gage

Product: Model P-1 miniature service gage for measuring pressure, vacuum, or differential readings.

Manufacturer: Ellison Draft Gage Co., Inc., Chicago, Ill.

Features: Available in ranges of 0 to 3" mercury and water, 0 to 40" of water using mercury, and 0 to 24 oz. using mercury. Useful applications include: air filters for differential readings to indicate replacement of filters; air-conditioning systems to evaluate blower suction; boilers for indicating draft in stack

REFRIGERATION & AIR-CONDITIONING



and windbox pressures; furnaces for establishing draft; and fans for indicating positive or negative pressures. Heavy wall glass indicating tube with straight uniform bore, protected by heavy transparent housing. Easily replaced in field without need for recalibration. Can be disassembled for cleaning.

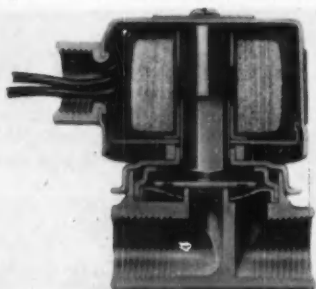
Circle No. 138 on Reader Service Card

Solenoid Valves

Product: Line of solenoid valves (Series J).

Manufacturer: Jackes-Evans Mfg. Co., St. Louis, Mo.

Features: Complete range from 5/16 to 1 1/2" port diameters. Designed to control water, air, low



pressure steam, light oils, brines, industrial and LP gasess, and other non-corrosive fluids. Only two moving parts; can be mounted in any position, pilot operation.

Circle No. 139 on Reader Service Card

Split Case Pumps

Product: "AquaLine" line of horizontal split case pumps for hot and cold water handling.

Manufacturer: Peerless Pump Div., Food Machinery and Chemical Corp., Los Angeles, Calif.

Features: Available in shaft sealed types in 1 1/2 to 4" discharge, and packing gland types in 4 to 8" discharge sizes. Capacity and head ranges of packing gland types up to 2600 gpm and up to 280', respectively, shaft sealed types up to 950 gpm, and 350' respectively. Liquid temperature limits for shaft

sealed is 180 F, packing gland types, 250 F. Motor sizes range from 1 to 75 hp. Split at center line of pump shaft for easy inspection and maintenance of rotating parts.

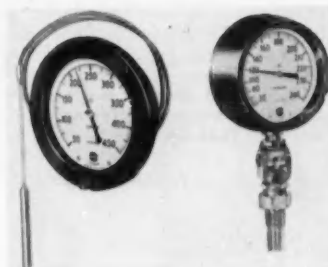
Circle No. 140 on Reader Service Card

Dial Thermometers

Product: "Supertherm" line of indicating dial thermometers.

Manufacturer: U. S. Gauge Div., American Machine and Metals, Inc., Sellersville, Pa.

Features: Measures temperatures from -350 to 1000 F. Line includes remote or direct reading types; methods of ambient tempera-



ture compensation; filling mediums for different temperature ranges and uses; case sizes, materials, and styles; and thermometer bulbs of

Good News for Servicemen!

TWO STOPS NO LONGER NECESSARY

NOW YOUR INDEPENDENT WHOLESALER CAN GIVE YOU
THE EXACT JARROW DOOR GASKET YOU NEED FOR

GENERAL ELECTRIC

and

HOTPOINT

refrigerators

(other makes and models will be added soon)

It's simple. Just give him the refrigerator model number and he'll know the correct Jarrow replacement door gasket.

Saves you time and money by taking all the guesswork out of gasket selection.



MR. WHOLESALER:

If you haven't yet received your copy of this time-saving "Key Chart", notify us at once and we'll get it to you promptly. It means faster sales and better satisfied customers for you.

JARROW PRODUCTS INC.
Almost a Third of a Century of Gasket Experience
1238-50 W. FULLERTON AVE. • CHICAGO 14, ILL.

Circle No. 45 on Reader Service Card

different sizes, shapes, and materials. Choice of four filling mediums: vapor, gas, mercury, and organic liquid. Bulb materials include copper, brass, and stainless steel. Capillary tubing available with or without armor. Dial sizes are 3½, 4½, 6, and 6½".

Circle No. 141 on Reader Service Card

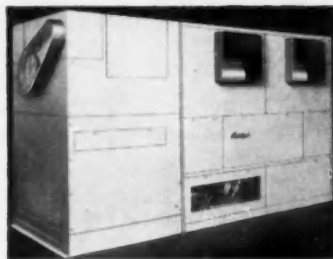
Air-conditioners

Product: Line of packaged air-conditioners (Model PAC).

Manufacturer: Acme Industries, Inc., Jackson, Mich.

Features: Designed to provide cooled, dehumidified and filtered air

for air-conditioning stores, offices, churches and other types of build-



ings. Internal wiring and piping is completed at the factory. Requires

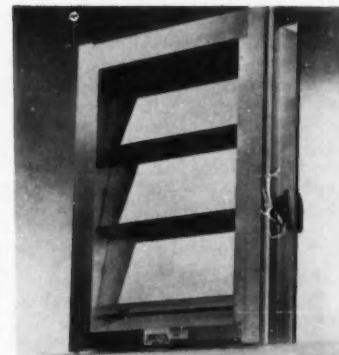
only the connection of power, water supply and drain. Capacities range from 20 to 60 tons. Similar models available from 3 to 15 tons capacity. Circle No. 142 on Reader Service Card

Adjustable Louver

Product: Fusible link adjustable louver (FL88) of extruded aluminum.

Manufacturer: Extruded Louver Corp., Newark, N. J.

Features: Blades may be adjusted to opened, closed, or any intermediate position. According to manufacturer, at all times stainless steel spring will take over and move



blades to desired position when fusible link is broken by heat of fire. Neater appearance achieved by concealing fusible link and chain in louver jamb. Blade design and spacing provide effective barrier against normal storm conditions, giving effective free area of 53% at same time, manufacturer says. All blades are fitted with neoprene gaskets full width to insure effective closure and quiet operation.

Circle No. 143 on Reader Service Card

strain-o-kap by WATSCO

the modern refrigerant metering device



PART NO. S-1

**NO
ADJUSTMENTS
NO
CUTTING
NO
GUESSWORK**

Strain-o-kap is a scientifically designed precision metering device that will operate efficiently regardless of make, model or refrigerant used.



PART NO. S-2

Part No. S-1 Housing is spun from hard-drawn copper tubing with a solder connection for ¼" O.D. tubing.

Part No. S-2 Strainers, brass housing, can be disassembled for cleaning. Inlet is provided with a standard ¼" male flare connection.

This superior strainer-capillary tube combination with exclusive triple mesh screens for 3-stage straining action is complete ALL-IN-ONE for sealed and open units.

- No moving parts to freeze, or become inoperative
- Three mesh strainers
- Less capillary noise
- Individually tested and calibrated for proper pressure drop
- Precision, hard-drawn capillary tubing
- Dehydrated, individually packed in heat-sealed pliofilm containers
- Satisfaction guaranteed

Send for 1958 Catalog. Write: Dept. B-12.



INC.

1020 EAST 15th STREET, HIALEAH, FLORIDA.

Soldering-Brazing Tool

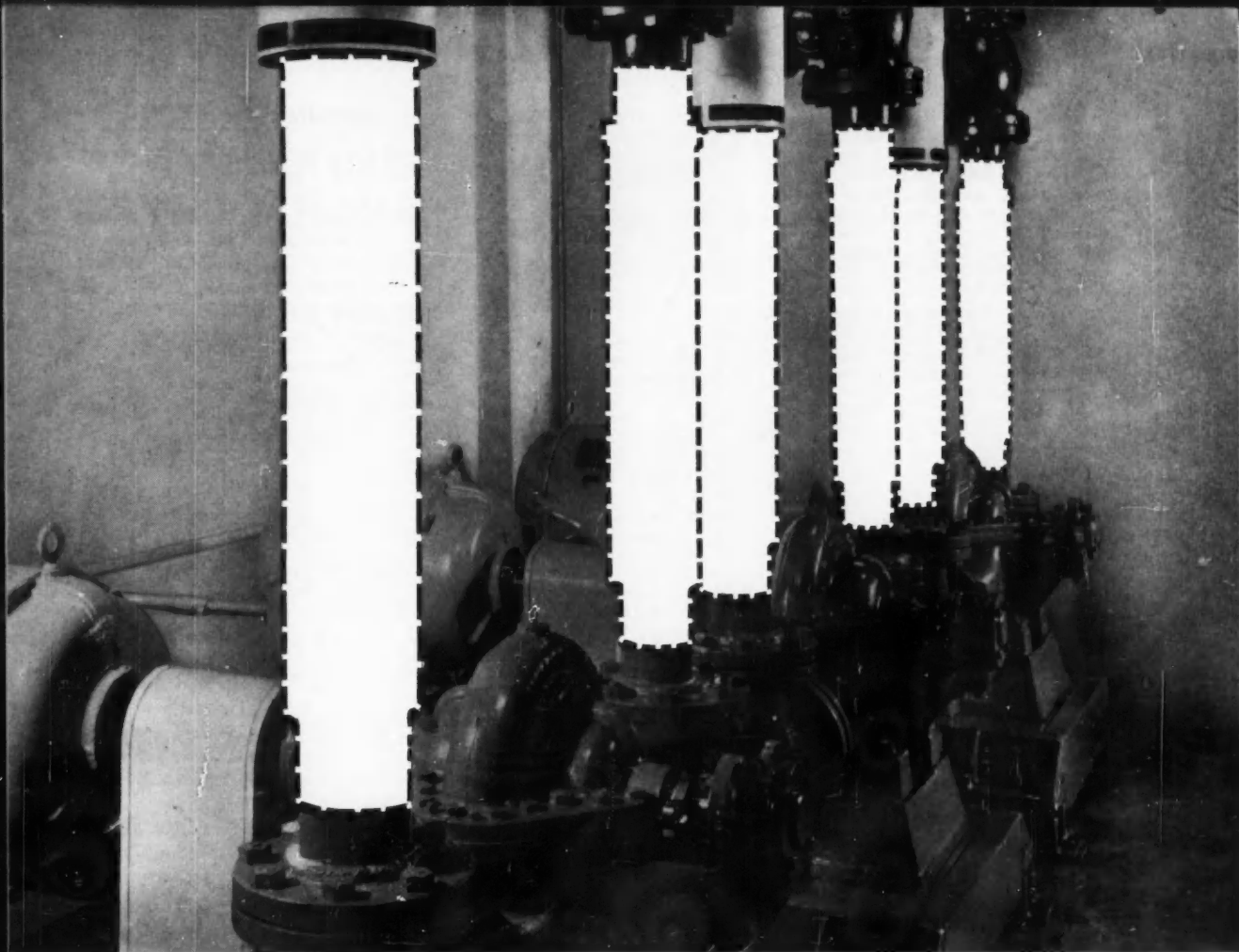
Product: "Thermo-Weld" portable soldering and brazing device.

Manufacturer: Auto-Test, Inc., Chicago, Ill.

Features: Soldering iron heats instantly. Foot pedal eliminates idling, current is used only when pedal is pressed. Unit consists of



Circle No. 46 on Reader Service Card

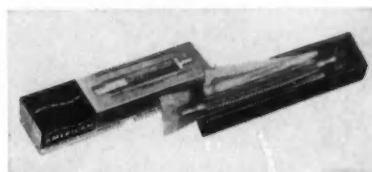


How would you complete this picture—to insure good will?

Noise and vibration can shake your reputation as a good contractor. That's why the job pictured above is "unfinished business"—until American Vibration Eliminators have been installed.

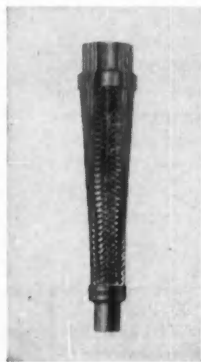
American VE's dampen noise, absorb vibration, and prevent cracked

pipings. That means satisfied customers. It means satisfied contractors, too—because *your* profits are protected! American Vibration Eliminators cut down costly return calls . . . provide top service without maintenance. See your Anaconda distributor.



Listed by Underwriters' Laboratories through sizes 3 1/2" O.D.

For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.



YOU CAN USE AMERICAN VE's WITH CONFIDENCE BECAUSE . . .
The Basic Metal's Right—It's a special tin-bronze alloy. Of scores of copper-base alloys, this one was selected because of its capacity to withstand the punishment of long periods of vibration. The wire braids, adding strength and durability to the VE, are also made of tin-bronze.

They're Manufactured Right—Every step in manufacturing is under close quality control supervision. Seven distinct finishing and cleaning operations result in a product free of dust, dirt or foreign particles. Each VE gets a nitrogen-under-water test to assure freedom from leaks.

VE's Arrive Clean, Ready to Use—They're sealed in polyethylene envelopes—packed in sturdy, easily-identified boxes. When you open the package, your VE's are factory-fresh—clean inside and out—ready to install in the lines.

SAFETY Dev.

Circle No. 47 on Reader Service Card

AMERICAN
 VIBRATION ELIMINATORS
 an
ANACONDA®
 product

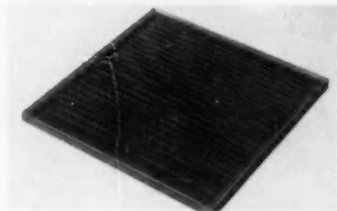
cabinet, 3-wire ac line cord 73½" long, footswitch with 6' line, work grounding clamp and 72" cable, and high current work probe with carbon electrode and 70" cable. Output current ranges can be obtained as high as 135 amps. Can be used for soldering and brazing lightweight metal.
Circle No. 144 on Reader Service Card

Air Diffusers

Product: "Perfair" perforated air diffusers.

Manufacturer: Air Devices Inc., New York, N.Y.

Features: Complete with matching return or exhaust units. Interchangeable cores available in var-



ious air pattern arrangements for 1, 2, 3, or 4 way blows. Built-in air controllers for adjustment of air deflection after installation. Face plate blends with acoustical ceilings. Separate mounting frames permit quick installation of supply or return units.
Circle No. 145 on Reader Service Card

Radial Unit Coolers

Product: Line of radial unit coolers.

Manufacturer: McQuay, Inc., Minneapolis, Minn.

Features: Eight redesigned models offer a range of 2600 to 14,000 Btu/hr at 10 F, TD. All models have ripple fin coil design for maxi-



mum air turbulence, hinged drain pan for easy installation and maintenance.

Circle No. 146 on Reader Service Card

Temperature Alarm

Product: "Reda Temp" temperature alarm system.

Manufacturer: Charlie Rogers, San Mateo, Calif.

Features: Can be used for high, low, or normal temperature applications to check refrigeration failures. It is only necessary to place the unit near cabinet or walk-in, so sensing element can be placed in the protected area. If temperature reaches a danger point the alarm



is given. Built-in external outlet makes it convenient to attach to any additional warning device.

Circle No. 147 on Reader Service Card

Float Valve

Product: Float valve (Model R-273).

Manufacturer: Magnetrol, Inc., Chicago, Ill.

Features: Switching action can be obtained by as little as ½" of liquid level travel. Pivot sockets are permanently lubricated. Cast aluminum housing effectively seals out room moisture to prevent frost formation. Float cannot touch sides or



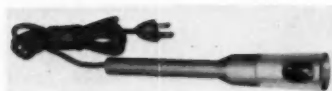
bottom of float chamber. Switches furnished are single pole, double throw. Can be used with ammonia, Freon, methyl chloride, sulphur dioxide, and other commercial refrigerants with 0.6 specific gravity or above. Operates at temperatures as low as -50 F.

Circle No. 148 on Reader Service Card

Service Light

Product: "Protex" service light.
Manufacturer: Daniel Woodhead Co., Chicago, Ill.

Features: Has non-marking, unbreakable molded nylon guard. Shock resistant 10 watt reinforced filament lamp. New insulated construction. Complete with 10' oil-proof cord set.



Circle No. 149 on Reader Service Card

UNIT HEATERS

Continued from page 47

a 6" dirt trap. Provide a petcock for venting and for continuous air bleed. Where possible, it is advisable to use reducing valves in the supply main so that the units may operate at lower pressures.

Strainers—While strainers are not essential, it is recommended that they be installed between the unit heater and the trap or check valve, if the latter is used. They should be placed in the supply if the unit heater is equipped with steam distributing-tube coils.

New Unit Heaters—Inspect carefully before operating. Normally, no attention is needed, but it is a wise precaution.

Check to see that the wheel is in the proper position and tight on the shaft. Tighten any loose nuts and bolts. Remove and carefully save operating instructions. If necessary, lubricate as directed, but don't overdo it.

Check the line voltage. A wide swing or change from high to low voltage can result in a burned out motor.

OGDEN, LARKIN GET TOP NEMA SECTION POSTS

J. B. Ogden, vice president, sales, Airtemp Div., Chrysler Corp., has been reelected chairman of the room air-conditioner section, National Electrical Manufacturers Association. L. M. Larkin, general manager, air-conditioning division, Whirlpool Corp., has been elected vice chairman of the section. Larkin succeeds Paul Augenstein, new Airtemp president as section vice chairman.

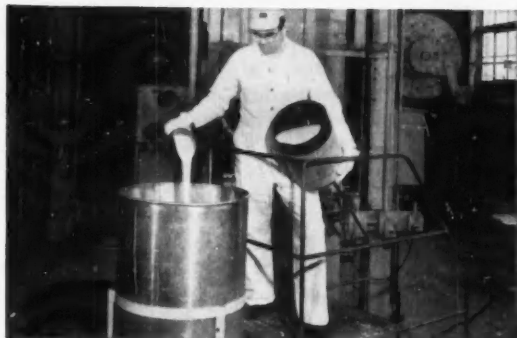
The election followed the resignations of Ogden and Augenstein as officers. Their actions were the result of changes made by them in their company affiliations. The reelection of Ogden was made possible when Airtemp joined NEMA.

Other realignments of section committees will be announced by the chairman.

BUY FROM YOUR REFRIGERATION WHOLESALE

Here are the reasons why—

DRY-ACID CLEANERS based on Du Pont Sulfamic Acid are gaining favor in industrial equipment cleaning



SAFER TO HANDLE—Dry-acid cleaners are dustless, free-flowing powders that *handle dry*. There's no danger of spillage, splashes of liquids or broken bottles.



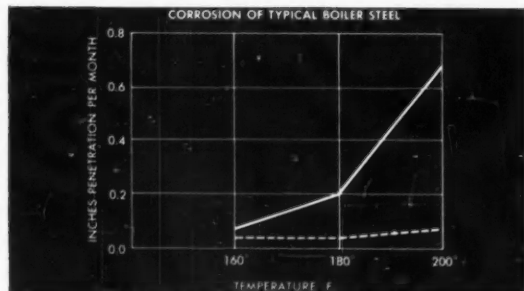
EASIER TO USE—No siphoning or cumbersome pouring of liquid acid—just scoop or shovel dry acid into make-up tank.



LOWER HANDLING COSTS—Packaged in convenient, easily handled and stored, disposable drums in a variety of sizes. 100-lb. drum is more than equal to one carboy of 18° hydrochloric acid (gross weight 192 lbs.).



NO HAZARDOUS FUMES—Dry-acid compounds are non-fuming, produce no corrosive gases... dry or in solution. Special precautions necessary in handling ordinary acids are eliminated.



———— Inhibited hydrochloric (5% HCl, by weight)

----- Inhibited Sulfamic Acid (7% by weight)

LESS CORROSIVE—Cleaners based on Du Pont Sulfamic Acid form solutions equal to hydrochloric acid in penetrating power, yet are far less corrosive (as shown by graph above).



SULFAMIC ACID

REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

Circle No. 48 on Reader Service Card

Cleaners based on Du Pont Sulfamic Acid are ideal for removing hard-water scale and other mineral deposits from industrial equipment such as air conditioning and ice-making units, food-processing vessels, steam boilers, milk evaporators and pasteurizers, marine evaporators and heat exchangers.

We'll gladly send you additional information on sulfamic-acid-based cleaners and the names of formulators who offer these cleaning compounds. E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Dept., Room N-2533, Wilmington 98, Del.

E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Dept., Rm. N-2533
Wilmington 98, Delaware

Please send me () free booklet about dry-acid cleaners based on Du Pont Sulfamic Acid. () Names of formulators who offer these cleaning compounds.

Name _____
Firm _____ Title _____
Address _____
City _____ State _____



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This Insignia on
your Door means
BIGGER PROFITS
than ever
before

FRANCHISED DEALER

Coldin
NEW YORK

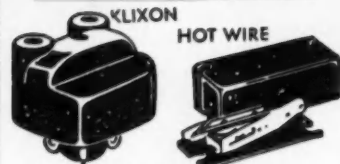
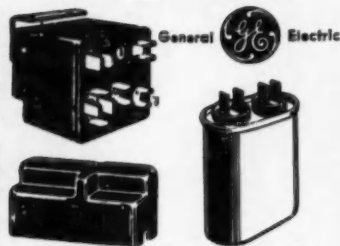
Your Key to
BETTER
REFRIGERATION

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SAM HAMMER INC.

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DOUBLE DUTY

Continued from page 40

Temperature levels throughout the building are registered instantly on a central control panel by use of a push button. The panel also has a temperature controller which electronically charts the outside temperature and the temperature of water returning to the system's cooler-heater. The temperature controller also regulates the water temperature by varying compressor capacity or number of compressors on the line.

The fan systems are located in the building's penthouse. Total cfm is about 65,000.

Inside summer design is 78 F db and 50% relative humidity and 70 F db in winter. Outside design is -5 F db in winter and 93 F db and 75 F wb in summer.

The laboratory is used for developing electronic equipment for all military services.

McQUAY CONTINUES BUILDING PROGRAM

A second addition to the Faribault, Minn., plant of McQuay, Inc., which was announced last fall, is scheduled to start immediately. This second unit of the company's three year plant expansion unit at Faribault will cover 13,600 sq.ft. of manufacturing space.

This new unit is more than two months ahead of schedule, and was necessitated by increased sales which are running 20 to 25% ahead of the highest previous year.

Also underway is a \$100,000 improvement program at the company's plant at Grenada, Miss. This is expected to increase production of 1/2-inch coils by 50%.

NEW COMPANY TO MAKE HEATING-COOLING COILS

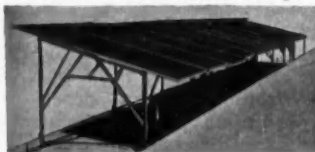
Anderson-Snow Corp. has started production of standard and custom built coils for special applications. The new line will feature heating coils, cooling coils, and air handling equipment. Principals in the company include Russell E. Anderson, Norman Snow, and Ray Rutkowski. The plant is located at 3863 North Milwaukee Ave., Chicago, Ill.

Edwards Airvec Supplies 90 Tons Of Air Conditioning To New Bowling Center*

EDWARDS Airvec Condenser Utilizes Convection Principle.

Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and



7 1/2 ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept.

Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

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- COST REDUCED 30% to 40%
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- Smaller Cooling Towers Required
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- Many Shapes and Sizes Available
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NEW TRENDS EXPECTED TO MARK ASHAE SHOW

New developments in heat zoning, and increased emphasis on gas heating and year-round air-conditioning will be in evidence at the 14th International Heating & Air-Conditioning Exposition to be held at Convention Hall, Philadelphia, Pa., January 26 to 29. The latest concept in radiant heating and cooling combined with sound conditioning will also be shown.

To be held under the auspices of American Society of Heating & Air-Conditioning Engineers, the event will have upwards of 450 displays featuring equipment for heating, ventilating and cooling as well as complete air-conditioning.

Controls which employ pneumatic and electronic transmission of signal impulses will be displayed. Other controls exhibited will include controls for the regulation of both temperature and humidity, contained column regulators, and control centers.

A variety of humidifiers and dehumidifiers, including automatic units for application to steam and hot water radiators, will be shown along with other moisture control equipment.

A new air-to-air heat pump, and an array of tools and equipment designed for installation and field work in the heating and air-conditioning business will also be shown.

Displays will range from raw materials through fabricated parts and components to finished machines and highly integrated systems.

MERGED FIRMS MAKE EXTENSIVE TOWER LINE

Announcement has been made of the merger of Dover Mfg. Co., Independence, Mo., with J. F. Pritchard & Co. of California, Kansas City, Mo.

The composite company, operating under the Pritchard of California name, now offers one of the industry's most extensive cooling tower lines.

Officers of the merged firms include J. F. Pritchard Jr., president; Karl E. Johnson, executive vice president; and P. S. Lyon, secretary-treasurer.

York Bets Heavily on "Blue Chip" Deal

FIRST Blue Chip Franchise is presented to John McGuinn of McGuinn Brothers, Tryon, N. C., by Walt Landmesser of York's factory sales staff, as the company presents the new merchandising program to its distributor-dealer organization.



Backed by the extensive research and development facilities of Borg-Warner Corp. and the multi-million dollar production facilities of two new manufacturing plants, York Corp. has presented to its dealers and distributors throughout the country a "Blue Chip" line of air-conditioning and heating products for 1959.

Keystone of this Blue Chip program, according to both York and Borg-Warner executives, is profit — profit for the manufacturer, profit for the distributor, and profit for the dealer. With this in mind, York is refranchising its entire dealer organization to make sure that only those dealers willing and able to sell proven products at a fair profit are awarded the Blue Chip franchise.

This Blue Chip program has been in the process of development for the past two and one-half years, ever since Borg-Warner acquired York. It is intended not just as a one-year promotional effort but as a continuing merchandising theme aimed at building York into a position of industry leadership.

The program was outlined to distributors and key dealers in a series of five regional meetings. Meetings for the southeast, northeast, and midwest areas were held at York headquarters in York, Pa. Similar sessions were staged in the south and on the west coast.

Each meeting was scheduled for three days. First day was devoted to room air-conditioning, second

to commercial air-conditioning, and the third to residential air-conditioning and heating plus packaged heat pumps for commercial as well as residential application.

Staged separately but in conjunction with these meetings was a presentation of the company's lines of automatic ice makers and condensing units.

Both Roy Ingersoll, board chairman and chief executive officer of Borg-Warner, and Robert Ingersoll, Borg-Warner president, were present at the meetings to emphasize the support the parent corporation is placing behind the new York program.

Henry Haase, York's president, outlined the program in these terms: "Our Blue Chip Franchise is based on the conviction that the consumer wants to know that he is getting a quality product for his money. To meet this need we're going to continue to build the best products available on the market, tell the public our story of built-in quality made possible through advanced engineering and research, and then sell only through distributors and dealers pledged to observe sound pricing and merchandising practices."

Haase stressed the industry's need for more creative selling, and promised that York would not only lead the way but also would follow through to make sure that the proper selling practices were carried out at all levels of distribution.



Birds Eye Zero-Storage Warehouse at Walla Walla, Washington

Styrofoam[®] cuts installation costs 10% at Birds Eye

After careful study, Styrofoam was chosen to insulate the floors, ceilings and walls of a zero-storage warehouse for Birds Eye Division of General Foods.

Over 500,000 board feet of Styrofoam were used. The choice of this insulation material resulted in a 10% savings in installation costs and, thus far, the complete absence of any vapor problems. Tests conducted by Birds Eye revealed that Styrofoam will preserve their food products for 48 hours after the ammonia has stopped circulating and that Styrofoam will insulate the ground from freezing for four to six weeks after the subfloor heating is turned off.

This is just one example of the many cold storage applications in which Styrofoam has provided economical and effective insulation. Because it has low heat transmission and unyielding resistance to moisture, Styrofoam has permanent insulation efficiency. Because it is lightweight, self-supporting and flexible, it offers advantages in handling and installation. This was demonstrated at Birds Eye by the fact that Styrofoam was readily contoured to the curvature of the roof.

For more information about Styrofoam* (a Dow plastic foam), contact the nearest Styrofoam distributor, or write to us, THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1909BB-1.

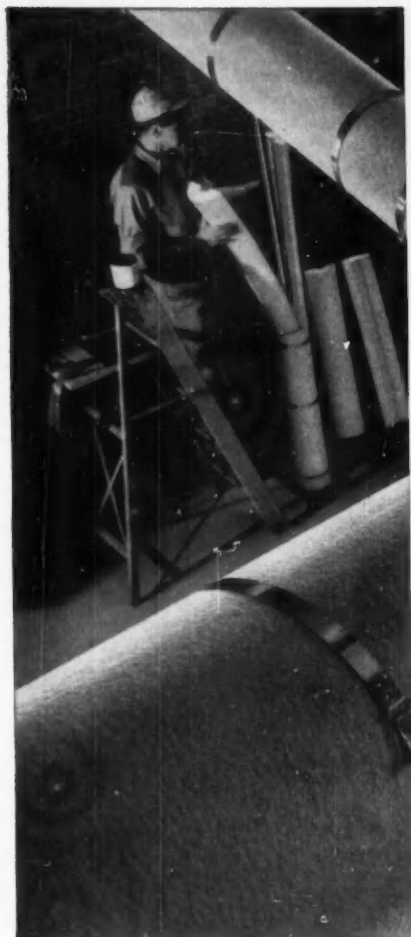
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STYROFOAM®
 for pipe covering insulation

Low-temperature pipe covering made of Styrofoam® does an excellent job and lasts a lifetime. Its unyielding resistance to moisture and its permanent low thermal conductivity prevent condensation and dripping—reduce heat transfer.

Styrofoam will not crack or split from changing temperature and it is not subject to ice buildup around valves. It's lightweight and easy to apply—requires no maintenance. A complete line of pipe and vessel covering made from Styrofoam is available from a number of fabricators. For their names and more information, write to THE DOW CHEMICAL COMPANY, Midland, Michigan, Plastics Sales Department 1916N.

*STYROFOAM is a registered trademark of The Dow Chemical Company



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 BUSINESS • DECEMBER 1958

Calendar of Industry Events

December 1-3, 1958

American Society of Refrigerating Engineers (Semiannual Meeting)
 Hotel Roosevelt
 New Orleans, La.

December 1-3, 1958

National Heating & Air conditioning Wholesalers (Annual Convention)
 Hotel Statler
 Cleveland, Ohio

December 1-4, 1958

National Warm Air Heating and Air Conditioning Association (Committee Meetings and Annual Convention)
 Cleveland, Ohio

January 18-22, 1959

National Association of Home Builders (Convention and Exposition)
 Chicago, Ill.

January 26-30, 1959

American Society of Heating and Air-Conditioning Engineers (Annual Meeting and Exposition)
 Philadelphia, Pa.

May 3-6, 1959

Air-Conditioning and Refrigeration Institute (Board and Annual Meeting)
 The Homestead
 Hot Springs, Va.

June 7-11, 1959

American Society of Heating and Air-Conditioning Engineers (Semiannual Meeting)
 Vancouver, B. C.

June 22-24, 1959

American Society of Refrigerating Engineers (Annual Meeting)
 Lake Placid Club
 Lake Placid, N. Y.

DULUTH BRANCH OPENED

Thermal Co., Inc., St. Paul, Minn., wholesaler-distributor of refrigeration, air-conditioning, and heating equipment, has opened a branch in Duluth. R. E. Peterson is manager of the new operation.

5-YEAR WARRANTY

Continued from page 43

turing defects, 5-year warranty or no. In fact, he cannot afford to. And if the manufacturer isn't reputable, the 5-year warranty isn't worth the paper it's written on.

As we see it, the 5-year warranty has two big strikes on it. The first is the length of coverage. The second is the fact that little uniformity exists among the warranty policies offered by various manufacturers.

Some warranties cover the entire refrigeration cycle; some do not. Some include labor allowances; others don't. And so it goes. The result is confusion for everyone, particularly the customer. As a result, the customer is forced to pay for a warranty that he often doesn't understand.

The answer? Well, here is our recommendation:

A 1-year warranty from date of installation against manufacturing defects. Defective parts to be made available at no charge, with freight paid to and from manufacturing site.

No labor allowance made by manufacturer on replacing these parts. Contractor to establish service reserve in accordance with local labor costs.

An out-of-warranty exchange price on compressor or refrigeration cycle.

A more stringent policy by manufacturers to assure that their products are properly applied and installed, and that proper maintenance and service is available.

Establishment of some uniformity among manufacturers on the terms of warranty coverage.

Under a warranty program like this the customer would stand to gain, not lose, for the result would be a better grade of dealer-contractors, better able to properly install and properly maintain the equipment they sell. Under a program like this the customer would stand a better chance of getting the protection he pays for in the warranty charge.

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REFRIGERATION WHOLESALER**

Letters

Ion Article Spurs BUSINESS Readers to Action

EDITOR:

The article about ions in the August issue of REFRIGERATION & AIR-CONDITIONING BUSINESS was most informative. I agree with the author that negative ions are a hot item in our industry.

Mention is made in this article of manufacturers who make ionizers for air outlets and others who make portable ion generators. Please let me know who these manufacturers are, for I want to try these products in my home to get first-hand experience.

C. C. RENNECAMP
Chief Application Engineer
White-Rodgers Co.
St. Louis, Mo.

EDITOR:

In REFRIGERATION & AIR-CONDITIONING BUSINESS for August you published a feature article by Edward Dowis titled "What You Should Know About Ions". It mentions that several manufacturers make equipment for ionization but it does not give any names.

Will you please furnish us with the names of some of these manufacturers so that we may write them and obtain some of this equipment?

HEWITT WAGNER
Hill York Gulfstream Corp.
Pompano Beach, Fla.

Here's another typical example of our editorial creed that "good editing makes things happen". These two letters were selected from among several received from readers who were not just interested in obtaining more information about ions, but who were actually ready to put their money on the line and buy ionizing equipment.

For the benefit of all readers who may want to take similar action, here is a list of firms producing ionizing equipment: General Electric Co., Apparatus Sales Div., 1 River Road, Schenectady 5, N. Y.; Ionair, Inc., 390 First St., San Francisco 5, Calif.; Montgomery Brothers, 1122 Howard

St., San Francisco, Calif.; Welsbach Corp., Kitson Valve Div., 1500 Walnut St., Philadelphia 2, Pennsylvania.

Room Type Heat Pumps Have Come a Long Way

EDITOR:

In the September issue of your publication we were quite interested in the article "Cash In on the Package Heat Pump" by Arthur H. Farr. We found this article instructive, but we would like to take issue on one point in which he states: "This modification of standard equipment was no more successful than the reverse cycle window unit in meeting the demands of the homeowner . . ."

I can appreciate Mr. Farr's comments since, although not stated, he probably is making reference to window unit heat pumps that were manufactured two or three years ago. These, I agree, were lacking in capacity as well as application.

The present art of development of the window, room, or zonal reverse cycle unit, however, is such that these heat pump units are proving quite successful, not only in application as supplemental heating devices, but also as basic heating units in various types of buildings.

T. H. FORD
Asst. to Vice President
Fedders-Quigan Corp.

Mr. Farr confirms Mr. Ford's comments by the following statement:

"In my September article I was trying to paint a word picture of the chronological development of the attic-type heat pump, starting with the converted reverse-cycle window unit of four or five years ago. In describing that necessary starting point I was referring even more specifically to those window units designed for cooling only, to which reversing valves have been added.

"Today's heat pump room air-conditioner is a far different product than its early predecessor, as it has been designed and engineered to operate as a heat pump."

Reader Seeks Help On Absorption Conversion

EDITOR:

I wrote you recently about the possibilities of converting a gas absorp-

tion refrigeration unit to kerosene. You suggested that Whirlpool Corp. might know how this could be done, or might even offer a conversion kit for doing it. I have learned from them, however, that they do not make any such conversion kit, although they do manufacture kerosene absorption refrigerators.

Now I would like to ask if some of our ingenious service engineers can come up with a practical solution to my problem via your "Letters to the Editor" column. This matter is extremely important to me, and any replies will be greatly appreciated.

JULIUS BLUESTEIN
M.L.S. Refrigeration Co.
North Miami, Fla.

Any reader have an answer for Mr. Bluestein? If you do, send it to REFRIGERATION & AIR-CONDITIONING BUSINESS, 812 Huron Road, Cleveland 15, Ohio. We'll forward it to him pronto.

Wants ARI Ratings

EDITOR:

Can you advise me as to how I may procure a copy of air conditioner ratings, ARI standard number 110-58. The new ratings were referred to on page 102 of your June issue.

P. RUSSELL HILLER
Allentown, Pa.

Copies of the ARI air-conditioner ratings can be obtained by writing to: Air-Conditioning & Refrigeration Institute, 1346 Connecticut Ave., Washington 6, D. C.

WORTHINGTON WINGS GO



A BOLD NEW TRADEMARK has replaced the 73-year old winged trademark of Worthington Corp. The move stems from a revitalization program that began almost 10 years ago. The trademark change, in step with an almost total realignment of the company, will be rapid. Research on the old trademark began two years ago.

Dealer-Distributor APPOINTMENTS

Carrier Corp. has named *A. T. Distributors*, Memphis, Tenn., to carry its line in the Memphis area. The firm will handle all Carrier products including automatic ice making equipment, room units, residential, commercial and industrial equipment for cooling and heating.

Gibson Refrigerator Co. has named *Sylvania Sales Corp.*, as its Buffalo area distributors. Offices of the distributorship are in Buffalo. Lester F. Hopkins is manager.

Gibson air-conditioning equipment to be handled by the new distributorship includes window and packaged central units and dual-purpose heating and cooling heat pump models, plus dehumidifiers.

Handweg Distributing Co., Inc., Tampa, Fla., has been appointed distributor for **Amana Refrigeration, Inc.** The company will handle Amana room and central air-conditioners in a 19-county area in central and western Florida.

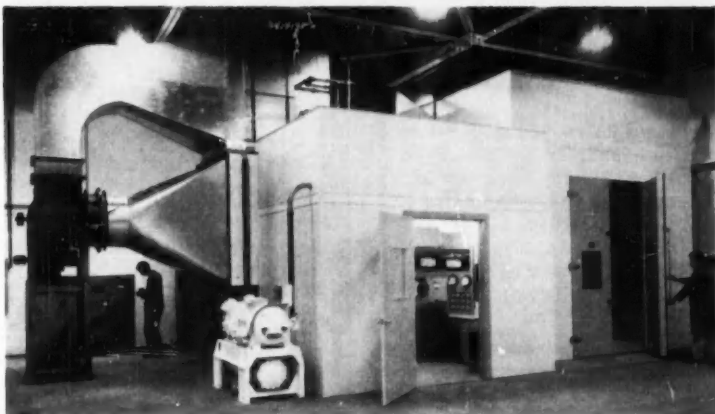
Domestic Supply Co., Seattle, Wash., has been appointed distributor for western Washington by **Sub-Zero Freezer Co., Inc.** Domestic will handle all products including free-standing freezers and the built-in refrigerator equipment line.

Trane Co. has named *Whitesell Refrigeration*, Hamilton, Ohio, as an authorized source of Trane package air-conditioning equipment in the Hamilton, Ohio area.

Refrigeration Components Co., St. Louis, Mo., has been named refrigeration sales representative for **McQuay, Inc.** The company will cover Missouri, Kansas, southern Illinois, western Kentucky, and northern Indiana.

National-U.S. Opens New Research Center

SYMBOLIC KEY is presented by T. B. Focke, (right) president, National-U.S. Radiator Corp., to senior vice president of engineering, L. N. Hunter at the dedication of the company's new engineering and research center. Below, one of the three sound and air-conditioning test cells at the center. Air-handling equipment capable of delivering as much as 12,000 cfm has been built into this cell, which is served by a 40-ton condensing unit.



National-U.S. Radiator Corp. recently dedicated its new engineering center at Research Park, Johnstown, Pa. The dedication followed a civic luncheon given by directors of the corporation. Dr. Eric A. Walker, president, Pennsylvania State University was the principal speaker.

The new structure brings under one roof the company's general engineering and research personnel, manufacturing staff and sales executives' offices. The 40,000-sq. ft. structure, located on an 8-acre wooded tract, includes development laboratory, test laboratory, engineering and research office area, drafting department and executive offices.

According to T. B. Focke, president, "The building provides the flexibility needed to develop and evaluate new designs in heating and air-conditioning equipment, and to explore such new and promising fields as heat pumps, solar and electric heating."

Development and test labora-

tory section of the building is a 12,000-sq.ft. area of high unobstructed space. The area has stations for testing air-conditioners, residential and commercial boilers, and a model shop for development work.

Each station has natural and bottled gas, city water, two grades of fuel oil, compressed air, single and three-phase electric power, cooling water and exhaust facilities. Portable consoles with centralized recording equipment simplify compilation of test data.

Air-conditioning test areas are equipped with quick-connect couplings which permit a complete change of equipment in the test stand in as little as half an hour.

Heating and air-conditioning requirements of the entire building have been met by a hydronics system which utilizes a gas fired water boiler with a rated capacity of 2,434,000 Btu/hr, and a 75-hp packaged industrial water chiller with water cooled condenser and external weather thermostat.

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I'm an expert with years of world wide experience. In fact, wherever refrigerators, freezers or air conditioners are repaired by smart businessmen, you'll find me. My name is Frankell's Hermetic Compressor Opener. I can open any shape compressor (up to 20" in dia.) regardless of the weld. And best of all, I take only two minutes of your time to do it! Or any one's time for that matter — I'm that easy to operate — No Gimmicks! No Fixtures! No Jigs! Remember, when you open and repair a hermetic compressor, the profits are big. And just one hermetic job a week and I'm paid for in full. I'm recommended by the world's leading firms. These are just a few of my references: American Motors Corp., Kelvinator Div., Detroit, Mich.; Siemens, Erlanger, West Germany; Sealed Unit Parts, N.Y.C.; Tecmar-Carrier, Mari-cabo, Venezuela; Jones Refrigerator Co., Raleigh, No. Carolina, and many more. I cost only \$695 net F.O.B. N.Y. or I can be rented monthly for an amazingly low cost. Write for complete information today. Write Dept. G Frankell Manufacturing Co., Inc., 1074 Home St., N.Y. 59, N.Y.

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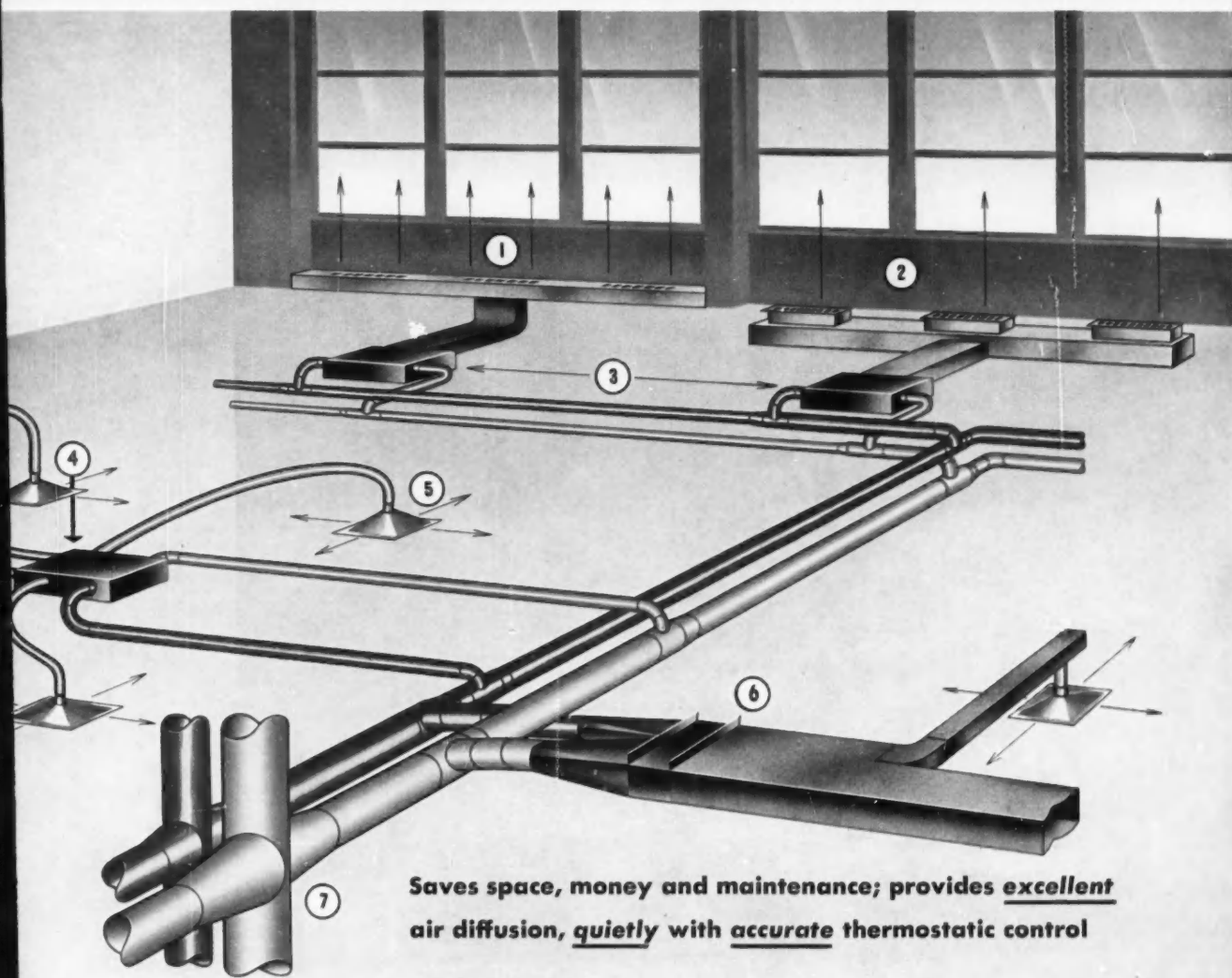
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